

# State of Alabama Ambient Air Monitoring 2014 Consolidated Network Review





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## Definitions and Acronyms

AAQM	ambient air quality monitoring
AAQMP	Ambient Air Quality Monitoring Plan
ADEM	Alabama Department of Environmental Management
Appendix D	Volume 40, Code of Federal Regulations, part 58, Appendix D
AQS	air quality system
Avg	average
Bham	Birmingham
CBSA	Core Based Statistical Area
CFR	<i>Code of Federal Regulations</i>
CO	Carbon Monoxide
CSA	Consolidated Statistical Area
EPA	Environmental Protection Agency
FEM	Federal Equivalent Method
FRM	Federal Reference Method
HDNREM	Huntsville Division of Natural Resources and Environmental Management
hr	hour
hi-vol	high-volume PM <sub>10</sub> sampler
JCDH	Jefferson County Department of Health
Low-vol	low-volume particulate sampler
m <sup>3</sup>	cubic meter
min	minute
ml	milliliter
MSA	metropolitan statistical area
NAAQS	national ambient air quality standard
NCore	National core monitoring (multi-pollutant)
O <sub>3</sub>	ozone
PAMS	photochemical air monitoring station
Pb	lead
PM	particulate matter
PM <sub>2.5</sub>	particulate matter less than 2.5 micrometers diameter
PM <sub>10</sub>	particulate matter less than 10 micrometer diameter
PM <sub>10-2.5</sub>	particulate matter less than 10 microns but greater than 2.5 microns
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
SLAMS	state and local air monitoring station
SO <sub>2</sub>	sulfur dioxide
SPM	special purpose monitor
STN (PM <sub>2.5</sub> )	Speciation Trends Network
TEOM	Tapered Element Oscillating Microbalance (Rupprecht and Patashnick Co.)
TPY	Tons per Year
TSP	total suspended particulate
URG	URG-3000N PM <sub>2.5</sub> Speciation monitoring carbon-specific sampler
USEPA	United States Environmental Protection Agency
° C	degree Celsius
µg/m <sup>3</sup>	micrograms (of pollutant) per cubic meter (of air sampled)



## Introduction

In October 2006, U.S.EPA issued final Federal Regulations (40 CFR 58) concerning state and local agency ambient air monitoring networks. These regulations require states to submit an annual monitoring network review to U.S.EPA. This network plan is required to provide the framework for establishment and maintenance of an air quality surveillance system and to list any changes that are proposed to take place to the current network during 2014.

## Public Review and Comment

The annual monitoring network review must be made available for public inspection for thirty (30) days prior to submission to U.S.EPA. For 2014, this document was placed on ADEM's website on June 4<sup>th</sup> to begin a 30 day public review period. This document can be accessed at the following link:

<http://www.adem.state.al.us/newsEvents/publicNotices.cnt>

then choose this document.

Or by contacting:

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## Overview of Alabama's Air Monitoring Network

Monitors in the state of Alabama are operated for a variety of monitoring objectives. These objectives include determining whether areas of the state meet the National Ambient Air Quality Standards (NAAQS), for public information (such as, participation in EPA's AirNow program), Air Quality Index (AQI) reporting for larger Metropolitan Statistical Areas MSAs, for use in Air Quality models and to provide data to Air Quality Researchers. Alabama monitors the six (6) criteria pollutants which have NAAQS identified for them; CO, Lead, NO<sub>2</sub>, Ozone, particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), and SO<sub>2</sub>. There are other non-criteria pollutants that are also monitored for special purposes (such as PM<sub>2.5</sub> speciated compounds). In addition meteorological data are also collected to support the monitoring and aid in analysis of the data.

In Alabama the air quality surveillance system is operated by the state environmental agency and two local programs. The agencies are the Alabama Department of Environmental Management (ADEM), the Jefferson County Department of Health (JCDH), and the Huntsville Department of Natural Resources and Environmental Management (HDNREM). Each of these agencies has performed the required annual review of their portion of the current ambient air quality network and developed a proposed network to be implemented during 2014. This document is a compilation of the reports from each agency.

Currently, the Air Quality Index (AQI) is reported for Huntsville, Birmingham, Mobile, Montgomery and Phenix City on the Internet at the sites listed below.

ADEM	<a href="http://www.adem.state.al.us/programs/air/airquality/ozone/historical.cnt">http://www.adem.state.al.us/programs/air/airquality/ozone/historical.cnt</a>
JCDH	<a href="http://www.jcdh.org/EH/AnR/AnR03.aspx">http://www.jcdh.org/EH/AnR/AnR03.aspx</a>
HDNREM	<a href="http://www.hsvcity.com/NatRes/Pollen/pollindex.htm#DAQ">http://www.hsvcity.com/NatRes/Pollen/pollindex.htm#DAQ</a>

An overview of the 2014 Alabama Monitoring Network can be seen in Table 1.

## Summary of findings of the network review

A national review is being conducted by the US EPA of the Chemical Speciation Network. During this review some monitors in Alabama may be determined to be of low value. EPA may choose to discontinue funding of a portion of the network. If that occurs, ADEM or the local program affected will need to determine if continued operation of those monitors will occur. This may affect the number of speciation monitors operated in 2015.

### ADEM

The owner of the building where the Pelham (AQS ID: 01-117-0006) PM 2.5 monitor is located has asked ADEM to remove that monitor from the roof of their building. ADEM is in the process of locating a new site in Shelby County.



On March 7, 2014 ADEM sent a request to Region 4 to discontinue PM 10 monitoring at the WKRG site in Mobile, AL. ADEM is awaiting the reply.

### **HDNREM**

There are no changes planned for the Huntsville Air Monitoring Network.

### **JDCH**

#### **Summary of changes for JCDH in 2013**

- Hi Volume Method PM<sub>10</sub> sampling discontinued. Continued Lo Volume Method PM<sub>10</sub> sampling and began converting the data from LC to STP for AQS submittal
- Established a near-road NO<sub>2</sub> monitoring site on January 1, 2014
- Added NO<sub>2</sub> sampling at N. B'ham/NCore to meet area-wide requirement for our CBSA
- Closed East Thomas site due to ALDOT road construction, relocated CO to NO<sub>2</sub> near-road site
- Replaced shelters at McAdory, Leeds and Hoover

#### **Proposed changes for 2014**

- McAdory shelter will be relocated
- Gravimetric filter weighing will be out-sourced to Inter-Mountain Labs



**Table 1 - 2013 Alabama Monitoring Network**

Site Common Name	AQS ID	Ozone	PM2.5	PM 2.5 collocated	PM2.5 Spec.	BAM (Cont. PM2.5)	TEOM (Cont. PM2.5)	PM 10 LoVal	PM10 LoVal Collocated	PM10	PM10 collocated	PM 10 Continuous	Lead	Lead Collocated	Lead-PM10	SO2	NO2	NOy	CO
<b>JCDH Sites</b>																			
North Birmingham (NCore)	01-073-0023	x	x	x	x	x		x	x			x	x	x	x	x	x	x	x
Fairfield	01-073-1003	x														x			x
McAdory School	01-073-1005	x	x	x			x	x											
Leeds Elem. School	01-073-1010	x	x	x			x	x											
Wylam	01-073-2003		x	x	x		x	x	x			x							
Hoover	01-073-2006	x					x												
Comer High School	01-073-5003	x					x												
Tarrant Elem. School	01-073-6002	x						x				x							
Sloss Shuttlesworth	01-073-6004							x				x							x
Near Road Site	01-073-2059		x														x		x
<b>ADEM Sites</b>																			
Fairhope	01-003-0010	x	x																
Ashland	01-027-0001		x																
Muscle Shoals	01-033-1002	x	x																
Crossville	01-049-1003		x																
DBT	01-051-0001	x																	
Gadsden - CC	01-055-0010		x			x													
Southside	01-055-0011	x																	
Dothan -CC	01-069-0003		x																
Dothan	01-069-0004	x																	
Mobile - Chickasaw	01-097-0003	x	x			x										x			
Mobile-WKRG	01-097-0016									x	x								
Mobile - Bay Road	01-097-2005	x																	
Montgomery - MOMS	01-101-1002	x	x	x	x					x	x								
Decatur	01-103-0011	x	x			x													
Phenix City - Downtown	01-113-0001		x	x	x		x												
Phenix City - Ladonia	01-113-0002	x																	
Helena	01-117-0004	x																	
Pelham	01-117-0006		x																
Ward, Sumter Co.	01-119-0003	x				x													
Childersburg	01-121-0002		x																
Tuscaloosa - VA Hospital	01-125-0004		x			x													
Duncanville, Tuscaloosa	01-125-0010	x														x			
Troy	01-109-0003												x	x					
<b>HDNR Sites</b>																			
Fire station #10 (Pulaski Pike)	01-089-0002									x									
Madison Street - Garage	01-089-0003									x									
Fire station #7 (S.Memor.Pwy)	01-089-0004									x									
Huntsville Old Airport	01-089-0014	x	x	x	x		x			x	x								
Huntsville Capshaw Rd	01-089-0022	x																	

A= to operate 2015 A17= to operate 2017

C= closed

R=to be relocated to Near Road site



## Network Plan Description

As per 40 CFR Part 58.10, an annual monitoring network plan which provides for the establishment and maintenance of an air quality surveillance system consisting of the air quality monitors in the state, is required to be submitted by all states to U.S.EPA.

Specifically §58.10 (a) requires for each existing and proposed monitoring site:

1. A statement of purpose for each monitor.
2. Evidence that siting and operation of each monitor meets the requirements of appendices A, C, D, and E of 40 CFR Part 58, where applicable.
3. Proposals for any State and Local Air Monitoring station (SLAMS) network modifications.

§58.10 (b) requires the plan must contain the following information for each existing and proposed site:

1. The Air Quality System (AQS) site identification number.
2. The location, including street address and geographical coordinates.
3. The sampling and analysis method(s) for each measured parameter.
4. The operating schedules for each monitor.
5. Any proposals to remove or move a monitoring station within a period of 18 months following plan submittal.
6. The monitoring objective and spatial scale of representativeness for each monitor.
7. The identification of any sites that are suitable and sites that are not suitable for comparison against the annual PM<sub>2.5</sub> NAAQS as described in §58.30.
8. The Metropolitan Statistical Area (MSA), Core Based Statistical Area (CBSA), Combined Statistical Area (CSA) or other area represented by the monitor.
9. The designation of any Pb monitors as either source-oriented or non-source-oriented according to Appendix D to 40 CFR part 58.
10. Any source-oriented monitors for which a waiver has been requested or granted by the U.S.EPA Regional Administrator as allowed for under paragraph 4.5(a)(ii) of Appendix D to 40 CFR part 58.
11. Any source-oriented or non-source-oriented site for which a waiver has been requested or granted by the U.S.EPA Regional Administrator for the use of Pb-PM<sub>10</sub> monitoring in lieu of Pb-TSP monitoring as allowed for under paragraph 2.10 of Appendix C to 40 CFR part 58.

## Monitoring Requirements

**Appendix A** of 40 CFR Part 58 outlines the Quality Assurance Requirements for SLAMS, SPMs, and PSD Air Monitoring. It details the calibration and auditing procedures used to collect valid air quality data, the minimum number of collocated monitoring sites, the calculation used for data quality assessments, and the reporting requirements. All sites in Alabama operate following the requirements set forth in this appendix.



**Appendix C** of 40 CFR Part 58 specifies the criteria pollutant monitoring methods which must be used in SLAMS and NCore stations. All criteria pollutant monitoring in Alabama follows the methods specified in this appendix.

**Appendix D** of 40 CFR Part 58 deals with the network design criteria for ambient air quality monitoring. The overall design criteria, the minimum number of sites for each parameter, the type of sites, the spatial scale of the sites, and the monitoring objectives of the sites are detailed. In designing the air monitoring network for Alabama, the requirements of this appendix were followed. The specifics for each pollutant network are in the their individual chapters.

**Appendix E** of 40 CFR Part 58 deals with the placement of the monitoring probe, it's spacing from obstructions and what materials the probe can be made of. All monitors operated in Alabama meet Appendix E criteria.

## Population and CBSA

Alabama has a population of 4,822,023 of which 3,910,965 is located in the 13 MSAs listed in Table 2.

**Table 2 – 2012 Estimated MSA Population**

<b>Metropolitan Statistical Areas</b>	
Anniston-Oxford, AL	116,736
Auburn-Opelika, AL	150,933
Birmingham-Hoover, AL	1,140,300
Columbus, GA-AL	316,554
Daphne-Fairhope-Foley, AL	195,540
Decatur, AL	153,374
Dothan, AL	147,691
Florence-Muscle Shoals, AL	147,317
Gadsden, AL	103,931
Huntsville, AL	435,737
Mobile, AL	414,079
Montgomery, AL	373,510
Tuscaloosa, AL	235,628

Minimum monitoring requirements vary for each pollutant and can be based on a combination of factors such as population, the level of monitored pollutants and Core Based Statistical Area (CBSA) boundaries as defined in the latest US Census information. The term "Core Based Statistical Area" (CBSA) is a collective term for both Metropolitan Statistical Areas (MSA) and Micropolitan Statistical Areas ( $\mu$ SA).

In February 2013 the Office of Management and Budget issued a Bulletin on the "Revised Delineations of Metropolitan Statistical Areas, Micropolitan Statistical Areas, and Combined Statistical Areas, and Guidance on Uses of the Delineations of These Areas". Based on the 2010



Census some changes were made to certain statistical areas listed above. The major changes that affected Alabama were:

- The Daphne-Fairhope-Foley, AL area was upgraded to a MSA from a  $\mu$ SA.
- The boundary of the Tuscaloosa MSA changed. Pickens County was added and Greene County was removed.
- The Enterprise-Ozark, AL  $\mu$ SA was split into the Enterprise, AL  $\mu$ SA and Ozark, AL  $\mu$ SA.

Table 3 List the CBSAs in Alabama along with the names of the counties included in that area, and the 2012 estimated population.. The Metropolitan Statistical Areas are listed first by highest population, then Micropolitan Statistical Areas are listed by highest population.

**Table 3- Alabama CBSAs**

<b>Core Based Statistical Area (CBSA) Title</b>	<b>Counties</b>	<b>2012 population est.</b>	<b>Metropolitan/Micropolitan Statistical Area</b>
Birmingham-Hoover, AL	Jefferson, Shelby, Bibb, Blount, Chilton, St. Clair, and Walker	1,140,300	Metropolitan Statistical Area
Huntsville, AL	Madison and Limestone	435,737	Metropolitan Statistical Area
Mobile, AL	Mobile County	414,079	Metropolitan Statistical Area
Montgomery, AL	Montgomery, Autauga, Elmore, and Lowndes	373,510	Metropolitan Statistical Area
Columbus, GA-AL	Russell County, AL and Chattahoochee County, GA, Harris County, GA, Marion County, GA, Muscogee County, GA	310,531	Metropolitan Statistical Area
Tuscaloosa, AL	Tuscaloosa, Pickens, and Hale	235,628	Metropolitan Statistical Area
Daphne-Fairhope-Foley, AL	Baldwin	195,540	Metropolitan Statistical Area
Decatur, AL	Lawrence and Morgan	153,374	Metropolitan Statistical Area
Dothan, AL	Henry, Geneva, and Houston	147,691	Metropolitan Statistical Area
Auburn-Opelika, AL	Lee	150,933	Metropolitan Statistical Area
Florence-Muscle Shoals, AL	Colbert and Lauderdale	147,317	Metropolitan Statistical Area
Anniston-Oxford-Jacksonville, AL	Calhoun	116,736	Metropolitan Statistical Area
Gadsden, AL	Etowah	103,931	Metropolitan Statistical Area
Albertville, AL	Marshall	94,760	Micropolitan Statistical Area
Talladega-Sylacauga, AL	Coosa and Talladega	91,994	Micropolitan Statistical Area
Cullman, AL	Cullman	80,811	Micropolitan Statistical Area
Scottsboro, AL	Jackson	52,951	Micropolitan Statistical Area
Enterprise, AL	Coffee	50,938	Micropolitan Statistical Area
Ozark, AL	Dale	49,884	Micropolitan Statistical Area
Selma, AL	Dallas	41,996	Micropolitan Statistical Area
Valley, AL	Chambers	34,162	Micropolitan Statistical Area
Troy, AL	Pike	33,339	Micropolitan Statistical Area



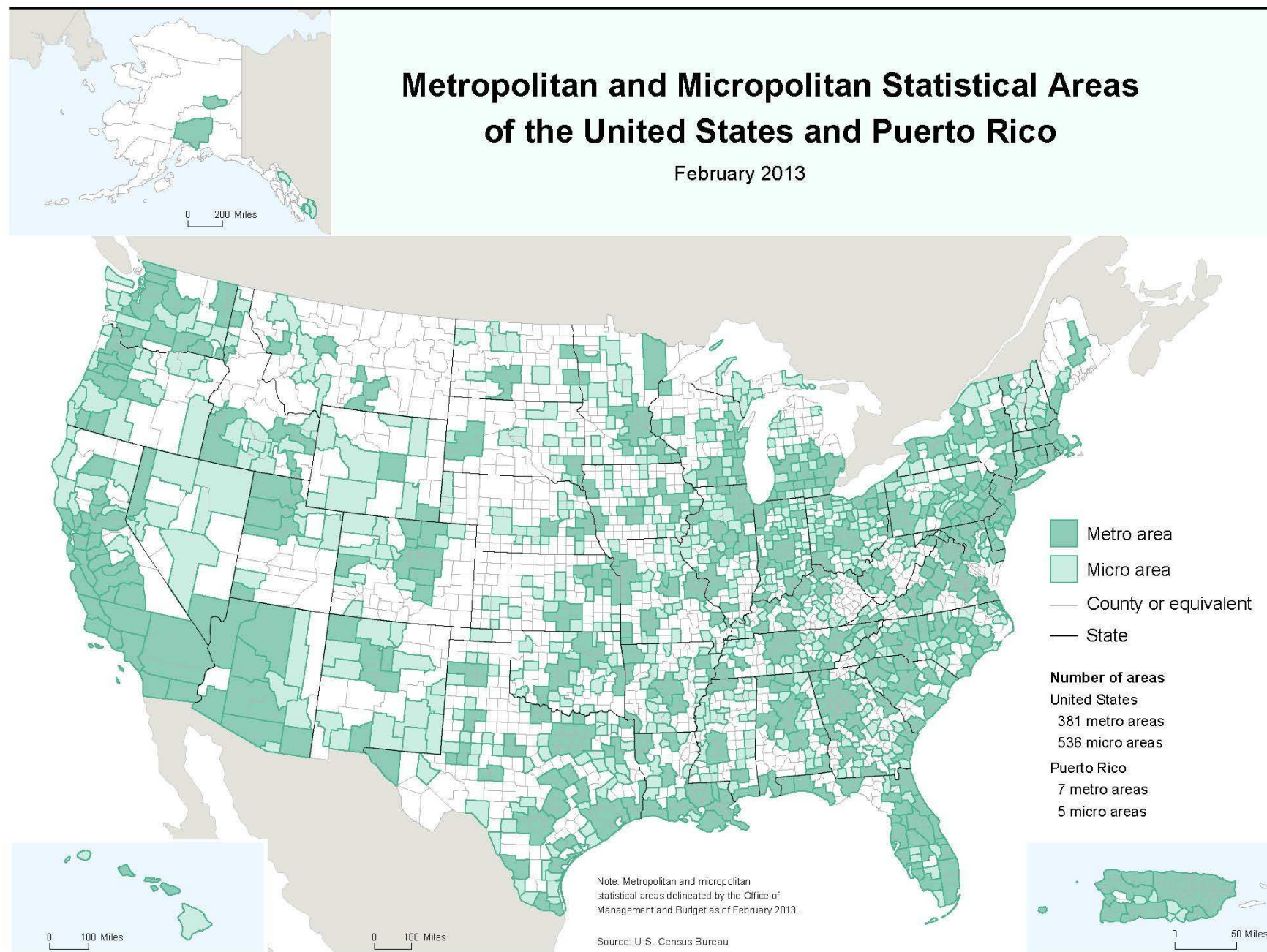
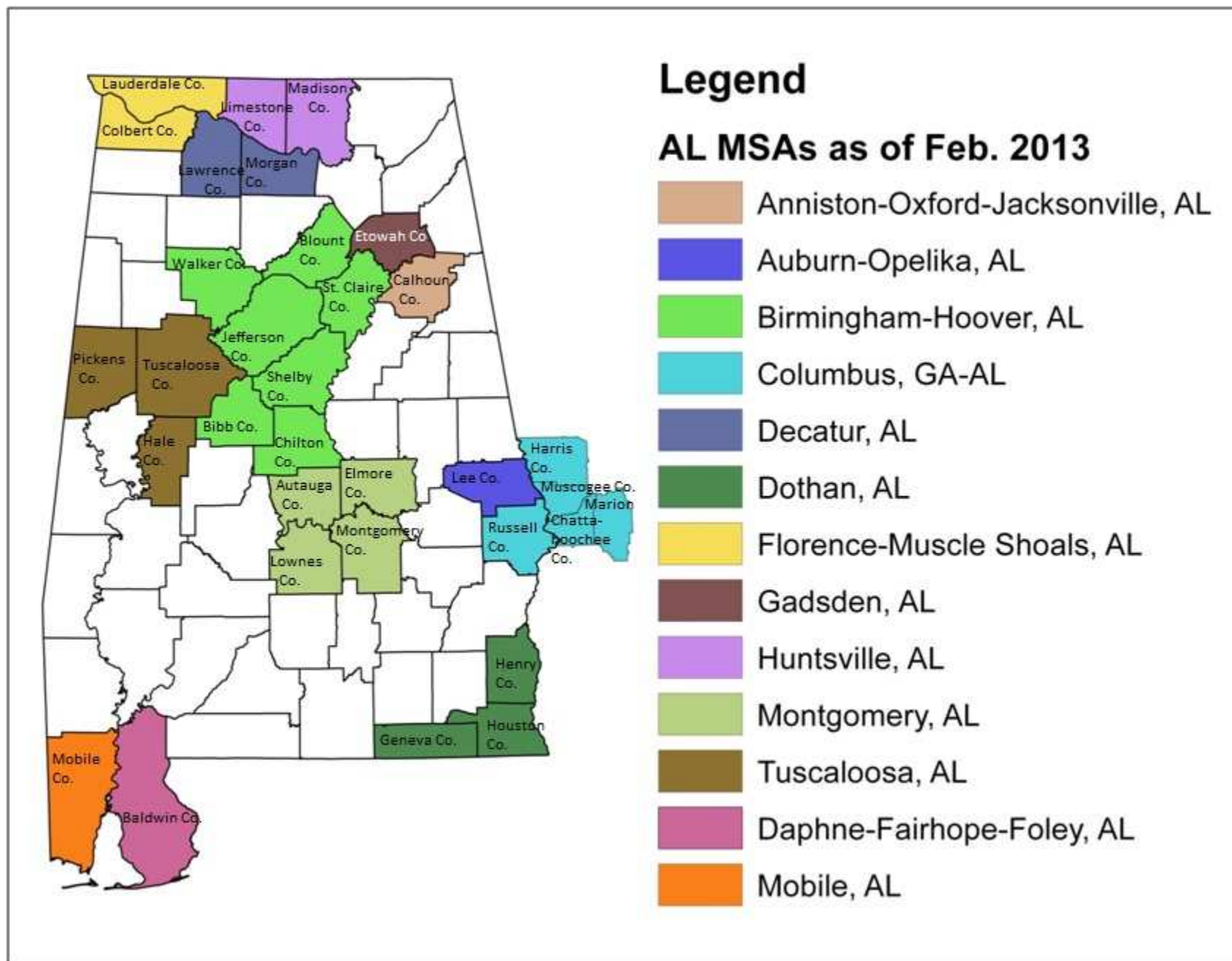
**Figure 1 – US CBSAs and Counties as of February 2013**



Figure 2-Alabama with MSAs as of 2013





## Types of Monitoring Stations

**PAMS** – *Photochemical Assessment Monitoring Station*: Sites established to obtain more comprehensive data of areas with high levels of ozone pollution by also monitoring NO<sub>x</sub> and VOCs. **PAMS monitoring is not required in the state of Alabama.**

**SLAMS** - *State or Local Ambient Monitoring Station*: The SLAMS make up the ambient air quality monitoring sites that are primarily needed for NAAQS comparisons. **These will be described in detail by pollutant and Monitoring Agency later.**

**STN** – *PM<sub>2.5</sub> Speciation Trends Network*: A PM<sub>2.5</sub> speciation station designated to be part of the speciation trends network. This network provides chemical species data of fine particulates. **There is currently 1 STN site located in Alabama at the North Birmingham site (01-073-0023).**

**Supplemental Speciation** - Any PM<sub>2.5</sub> speciation station that is used to gain supplemental data and is not dedicated as part of the speciation trends network.

**There are currently 4 PM<sub>2.5</sub> supplemental speciation sites located in Alabama.** These are at Huntsville, Montgomery, Phenix City, and Wylam.

**NCore** – *National Core multi-pollutant monitoring station*: Sites that measure multiple pollutants at trace levels in order to provide support to integrated air quality management data needs. Each state is required to operate one NCore site. **The NCore site for Alabama is located in the Birmingham MSA at the North Birmingham site (01-073-0023) operated by JDCH. Additional information concerning this site can be found in the JCDH portion of the network description.**

**CASTNET** – *Clean Air Status and Trends Network*: is a national air quality monitoring network designed to provide data to assess trends in air quality, atmospheric deposition, and ecological effects due to changes in air pollutant emissions. CASTNET provides long-term monitoring of air quality in rural areas to determine trends in regional atmospheric nitrogen, sulfur, and ozone concentrations and deposition fluxes of sulfur and nitrogen pollutants in order to evaluate the effectiveness of national and regional air pollution control programs. Recently for Ozone CASTNET upgraded its equipment and its procedures to meet the same requirements as SLAMS. EPA-sponsored CASTNET ozone monitors have now become Part 58 compliant and therefore the data can be used for regulatory purposes. CASTNET Ozone data are now reported to AQS. There is one CASNET site in Alabama and it is operated by an EPA contractor. It is Sand Mountain (AQS ID 01-049-9991) in De Kalb county.



## Alabama's SLAMS by Pollutant

### Lead Network

In 2008, the US EPA revised the National Ambient Air Quality Standard for lead. The lead standard was lowered from 1.5 ug/m<sup>3</sup> for a quarterly average to 0.15 ug/m<sup>3</sup> based on the highest rolling 3 month average over a 3 year period. EPA set minimum monitoring requirements for source and population oriented monitoring. Source oriented monitoring is required near sources that have emissions greater than or equal to 1 ton per year. Population oriented monitoring is required for CBSAs greater than 500,000. In December of 2010 EPA revised the lead rule to include sources greater than ½ ton per year and stated that the Population oriented monitors would be located at the NCore sites.

Based on current emissions data or modeling ADEM has identified 1 source (Sanders Lead Co.) which emits greater than 1/2 ton of lead per year. ADEM has an existing monitor (AQS ID 01-109-0003) near that source. This monitor appears to be sited in the proper location and ADEM will continue to operate that monitor. To meet QA requirements, collocated Lead monitoring is also occurring at this site.

Based on current emission data, JCDH and the City of Huntsville have no sources that would require monitoring.

In addition, Pb monitoring is required at any NCore site in each CBSA with a population equal to or greater than 500,000 people. For the Birmingham-Hoover MSA, this site is being operated by JDCH and is located at the NCORE (North Birmingham AQS ID 01-073-0023) site and has been collecting data since 12-29-2011.

In the 2010 rule revision (FR Vol. 75, No. 247, pg 81126-81138), EPA identified 15 airports across the nation that had a potential for lead emissions that could lead to a violation of the Lead NAAQS. At least one year of lead monitoring was required at each of these airports, and if the results were greater than 50% of the Lead NAAQS then the monitor would continue to be required. Alabama's Pryor Field Regional was one of these airports. Subsequently, monitoring was performed from 1/1/2013 through 12/31/2013.



## Carbon Monoxide (CO) Network

On August 12, 2011 EPA issued a final rule that retained the existing NAAQS for Carbon Monoxide (CO) and made changes to the ambient air monitoring requirements for CO.

EPA revised the minimum requirements for CO monitoring by requiring CO monitors to be sited near roads in certain urban areas.

40 CFR Part 58 Appendix D, 4.2 details the requirements for CO monitoring.

4.2.1 General Requirements. (a) Except as provided in subsection (b), one CO monitor is required to operate collocated with one required near-road NO<sub>2</sub> monitor, as required in Section 4.3.2 of this part, in CBSAs having a population of 1,000,000 or more persons. If a CBSA has more than one required near-road NO<sub>2</sub> monitor, only one CO monitor is required to be collocated with a near-road NO<sub>2</sub> monitor within that CBSA.

(b) If a state provides quantitative evidence demonstrating that peak ambient CO concentrations would occur in a near-road location which meets microscale siting criteria in Appendix E of this part but is not a near-road NO<sub>2</sub> monitoring site, then the EPA Regional Administrator may approve a request by a state to use such an alternate near-road location for a CO monitor in place of collocating a monitor at near-road NO<sub>2</sub> monitoring site.

EPA is specifying that monitors required in CBSAs of 2.5 million or more persons are to be operational by January 1, 2015. Those monitors required in CBSAs having 1 million or more persons are required to be operational by January 1, 2017.

Based on this, one CO monitor would be required to be collocated with the near road NO<sub>2</sub> monitoring road site in the Birmingham-Hover, AL CBSA and operational by January 1, 2017.

JDCH is currently operating a near-road NO<sub>2</sub> monitoring site. JCDH has relocated the CO monitor currently at East Thomas (AQS ID 01-073-0028) to this new site (AQS ID 01-073-2059) to meet the new monitoring requirements. The East Thomas site was closed due to Alabama Department of Transportation road expansion on Arkadelphia Road.

Currently CO is monitored at the following 4 sites :

**Table 4 - JCDH CO Monitoring sites**

AQS No.	County	Site Name	Latitude	Longitude	Start Date	Objective	Scale	Frequency
01-073-2059	Jefferson	Near Road Site	33.521427	-86.815000	1/1/2014	High Pop. Exposure	Micro	Continuously Year-round
01-073-1003	Jefferson	Fairfield, PFD	33.485556	-86.915062	12/11/74	High Pop. Exposure	Neighborhood	Continuously Year-round
01-073-6004	Jefferson	N. B'ham, Sloss	33.565278	-86.796389	9/25/96	High Conc.	Neighborhood	Continuously Year-round
01-073-0023	Jefferson	N. B'ham, SR	33.553031	-86.814853	3/1/2000	High Pop. Exposure	Neighborhood	Continuously Year-round



## Nitrogen Dioxide (NO<sub>2</sub>) Network

On January 22, 2010 the US EPA finalized the monitoring rules for Nitrogen Dioxide. The new rules include new requirements for the placement of new NO<sub>2</sub> monitors in urban areas. These include:

### Near Road Monitoring

- At least one monitor must be located near a major road in each CBSA with a population greater than or equal to 500,000 people. A second monitor is required near another major road in areas with either:

- (1) CBSA population greater than or equal to 2.5 million people, or
- (2) one or more road segment with an annual average daily traffic (AADT) count greater than or equal to 250,000 vehicles.

These NO<sub>2</sub> monitors must be placed near those road segments ranked with the highest traffic levels by AADT, with consideration given to fleet mix, congestion patterns, terrain, geographic location, and meteorology in identifying locations where the peak concentrations of NO<sub>2</sub> are expected to occur. Monitors must be placed no more than 50 meters (about 164 feet) away from the edge of the nearest traffic lane.

For near road NO<sub>2</sub> monitoring Birmingham-Hoover is the only CBSA in Alabama with a population greater than 500,000. However, the population is less than 2.5 million and there are no road segments with AADT greater than 250,000 vehicles. Therefore, one near road NO<sub>2</sub> monitor is located in the Birmingham-Hoover CBSA. JCDH has established a site at Arkadelphia Road (AQS ID 01-073-2059). The establishment of a permanent near-road NO<sub>2</sub> monitoring site met design and siting criteria as spelled out in 40 CFR Part 58 and was operational by January 1, 2014.

### Community Wide Monitoring

- A minimum of one monitor must be placed in any urban area with a population greater than or equal to 1 million people to assess community-wide concentrations.
- An additional 53 monitoring sites will be required to assess community-wide levels in urban areas.
- Some NO<sub>2</sub> monitors already in operation may meet the community-wide monitor siting requirements.

For community wide monitoring, The Birmingham-Hoover is the only CBSA in Alabama with a population greater than 1 million, so there will need to be one NO<sub>2</sub> monitor located there. JDCH is added community wide NO<sub>2</sub> sampling to the NCore site at North Birmingham (AQS ID 01-073-0023) which began operation January 1, 2014.



## Sulfur Dioxide (SO<sub>2</sub>) Network

On June 2, 2010, EPA strengthened the primary National Ambient Air Quality Standard (NAAQS) for sulfur dioxide (SO<sub>2</sub>). EPA is revising the primary SO<sub>2</sub> standard by establishing a new 1-hour standard at a level of 75 parts per billion (ppb).

According to EPA, for a short-term 1-hour SO<sub>2</sub> standard, it is more technically appropriate, efficient, and effective to use modeling as the principal means of assessing compliance for medium to larger sources, and to rely more on monitoring for groups of smaller sources and sources not as conducive to modeling. Such an approach is consistent with EPA's historical approach and longstanding guidance for SO<sub>2</sub>. EPA is setting specific minimum requirements that inform states on where they are required to place SO<sub>2</sub> monitors. The final monitoring regulations require monitors to be placed in Core Based Statistical Areas (CBSAs) based on a Population Weighted Emissions Index (PWEI) for the area. The final rule requires:

- 3 monitors in CBSAs with index values of 1,000,000 or more;
- 2 monitors in CBSAs with index values less than 1,000,000 but greater than 100,000; and
- 1 monitor in CBSAs with index values greater than 5,000.

Based on this the Birmingham-Hoover CBSA requires 2 SO<sub>2</sub> monitors. JDCH has two sites at North Birmingham (AQS ID 01-073-0023) and Fairfield (AQS ID 01-073-1003) with SO<sub>2</sub> monitoring that fulfills the monitoring requirement.

The Huntsville CBSA has a PWEI less than 5,000 so no SO<sub>2</sub> monitor is required.

Based on the latest PWEI 1 SO<sub>2</sub> monitor is required in the Mobile, MSA. ADEM operates an SO<sub>2</sub> monitor at the Chickasaw site (AQS ID 01-097-0003) for the Mobile CBSA. This site became operational on January 1<sup>st</sup>, 2013.



**Table 5 - CBSA's PWEI and number of monitors required**

**Population Weighted Emissions Index (PWEI) Calculations  
May 2014 - Using 2013 Census Estimates & 2011 NEI**

<b>CBSA Name</b>	<b>2011 NEI so<sub>2</sub> (tpy)</b>	<b>Population (2013)</b>	<b>PWEI in Million persons- tpy</b>	<b>Required Monitors</b>
Birmingham-Hoover, AL	115,337	1,140,300	131,519	2
Mobile, AL	18,726	414,079	7,754	1
Florence-Muscle Shoals, AL	18,642	147,317	2,746	0
Montgomery, AL	3,982	373,510	1,487	0
Columbus, GA-AL	3,696	316,554	1,170	0
Decatur, AL	4,881	153,374	749	0
Talladega-Sylacauga, AL	5,274	91,994	485	0
Gadsden, AL	3,949	103,931	410	0
Scottsboro, AL	6,497	52,951	344	0
Cullman, AL	3,487	80,811	282	0
Troy, AL	8,066	33,339	269	0
Tuscaloosa, AL	1,045	235,628	246	0
Huntsville, AL	284	435,737	124	0
Daphne-Fairhope-Foley, AL	213	195,540	42	0
Dothan, AL	221	147,691	33	0
Selma, AL	773	41,996	32	0
Auburn-Opelika, AL	189	150,933	29	0
Anniston-Oxford, AL	216	116,736	25	0
Albertville, AL	81	94,760	8	0
Ozark	106	49,884	5	0
Valley, AL	138	34,162	5	0
Enterprise-Ozark, AL	87	50,938	4	0



## PM<sub>10</sub> Network

PM<sub>10</sub> has been a criteria pollutant since 1987. Since that time there has been widespread monitoring of the PM<sub>10</sub> levels in Alabama. In 2006 the US EPA modified the NAAQS for PM<sub>10</sub> to revoke the annual standard. Currently, there is still a daily standard of 150 ug/m<sup>3</sup> based on 3 years of data. All monitors in the state have recorded PM<sub>10</sub> levels that meet the NAAQS. Table 7 shows the minimum monitoring requirements.

**Table 6 - APPENDIX D TO PART 58. PM<sub>10</sub> MINIMUM MONITORING REQUIREMENTS**

<b>TABLE D-4 OF APPENDIX D TO PART 58. PM<sub>10</sub> MINIMUM MONITORING REQUIREMENTS (NUMBER OF STATIONS PER MSA)<sup>1</sup></b>			
<b>Population category</b>	<b>High concentration<sup>2</sup></b>	<b>Medium concentration<sup>3</sup></b>	<b>Low concentration<sup>4,5</sup></b>
>1,000,000	6-10	4-8	2-4
500,000-1,000,000	4-8	2-4	1-2
250,000-500,000	3-4	1-2	0-1
100,000-250,000	1-2	0-1	0

1 Selection of urban areas and actual numbers of stations per area within the ranges shown in this table will be jointly determined by EPA and the State Agency.

2 High concentration areas are those for which ambient PM<sub>10</sub> data show ambient concentrations exceeding the PM<sub>10</sub> NAAQS by 20 percent or more.

3 Medium concentration areas are those for which ambient PM<sub>10</sub> data show ambient concentrations exceeding 80 percent of the PM<sub>10</sub> NAAQS.

4 Low concentration areas are those for which ambient PM<sub>10</sub> data show ambient concentrations less than 80 percent of the PM<sub>10</sub> NAAQS.

5 These minimum monitoring requirements apply in the absence of a design value.

The Birmingham-Hoover MSA's PM<sub>10</sub> concentrations are less than 80 percent of the PM<sub>10</sub> National Ambient Air Quality Standards (NAAQS). According to table 7 above, MSA's with populations greater than 1,000,000 and low concentrations (less than 80 percent of PM<sub>10</sub> NAAQS), are required to operate between 4 and 8 sites. Based on the concentration of the MSA's population and emissions being in Jefferson County, and historical PM<sub>10</sub> monitoring in Walker, Shelby, and Chilton Counties indicating levels in the low concentration range, these required sites are located in Jefferson County and operated by the JCDH. Currently JCDH operates low-volume PM<sub>10</sub> monitors at seven sites located in the main industrial valley. The North Birmingham/NCore site operates on a 1 in 3 day schedule. Three sites, North Birmingham, Wylam and Tarrant Elementary School are collocated on the six day schedule. Four of the PM<sub>10</sub> sites, North Birmingham, Wylam, Sloss and Tarrant Elementary School, have continuous PM<sub>10</sub> monitors for quality assurance purposes. The collocated pair of PQ200s at the NCore site will continue to be operated at local conditions for lead monitoring.

All other monitors in Alabama have indicated the PM<sub>10</sub> levels to be in the low concentration range. For MSAs less than 250,000 population zero PM<sub>10</sub> monitors are required. Both the Mobile and Montgomery MSAs have populations between 250,000 and 500,000 and are required to have 0 to 1 monitors. The Mobile MSA has 1 site at WKRG (01-097-0016) with two monitors, one of them being the collocated monitor. The Montgomery MSA has 1 site at MOMS (01-101-1002) with two monitors, one of them being the collocated monitor that was added and started reporting to AQS 01/01/2013. The Huntsville MSA also falls in this size range and the City of Huntsville currently operates four PM<sub>10</sub> monitors and 1 collocated monitor at Huntsville



Old Airport (AQS ID 01-089-0014). The Columbus GA/AL MSA has a population of 310,531 and historically has had low PM<sub>10</sub> concentration; the PM<sub>10</sub> monitor operated by the State of Georgia was closed 12/31/2012.

Due to problems with the infrastructure at the WKRG site and the expense of required to maintain the site, ADEM has requested to close this site in a March 7, 2014 letter to Region 4. With this closure, ADEM would still meet the minimum monitoring requirements for PM<sub>10</sub>.



## Ozone Network

Minimum monitoring requirements for ozone are based on population and whether the design value is less than 85% of the NAAQS or greater than or equal to 85% of the NAAQS (See Table 8). The NAAQS for ozone is 0.075 parts per million of ozone therefore 85% of the NAAQS truncated is 0.063 ppm. To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm (effective May 27, 2008).

**Table 7 - APPENDIX D TO PART 58. SLAMS MINIMUM O<sub>3</sub> MONITORING REQUIREMENTS**

<b>TABLE D-2 OF APPENDIX D TO PART 58.— SLAMS MINIMUM O<sub>3</sub> MONITORING REQUIREMENTS</b>		
MSA population <sup>1, 2</sup>	Most recent 3-year design value concentrations $\geq$ 85% of any O <sub>3</sub> NAAQS <sup>3</sup>	Most recent 3-year design value concentrations $<$ 85% of any O <sub>3</sub> NAAQS <sup>3, 4</sup>
>10 million	4	2
4–10 million	3	1
350,000–<4 million	2	1
50,000–<350,000 <sup>5</sup>	1	0

1 Minimum monitoring requirements apply to the Metropolitan statistical area (MSA).

2 Population based on latest available census figures.

3 The ozone (O<sub>3</sub>) National Ambient Air Quality Standards (NAAQS) levels and forms are defined in 40 CFR part 50.

4 These minimum monitoring requirements apply in the absence of a design value.

5 Metropolitan statistical areas (MSA) must contain an urbanized area of 50,000 or more population.

Table 9 below lists Alabama's Ozone sites, the name of the MSA they are located in, the 2012 estimated population of the MSAs, the 2010-2012 Ozone Design Values, the number of monitors required by the CFR and the number of monitors existing.



**Table 8- Alabama MSAs with Ozone Monitoring Sites and current Design Value**

Site Name	AQS ID	2011-2013 Design Values	MSA	Est. 2013 Pop.	MSA Max DV	# of sites required per CFR	Current # of sites
Helena	01-117-0004	0.073	Birmingham- Hoover	1,140,300	0.076	2	8
Tarrant Elem. School	01-073-6002	0.076					
Fairfield	01-073-1003	0.071					
McAdory School	01-073-1005	0.074					
Hoover	01-073-2006	0.073					
North Birmingham	01-073-0023	0.071					
Corner High School	01-073-5003	0.070					
Leeds Elem. School	01-073-1010	0.074					
Phenix City - Ladonia	01-113-0002	0.065	Columbus, GA- Phenix City, AL	316,554	0.065	1	2*
Columbus, GA, Airport	13-215-0008	0.064					
Decatur	01-103-0011	0.068	Decatur	153,374	0.068	1	1
Dothan	01-069-0004	0.063	Dothan	147,691	0.063	1	1
Fairhope	01-003-0010	0.067	Daphne-Fairhope	195,540	0.067	1	1
Muscle Shoals	01-033-1002	0.064	Florence	147,317	0.064	1	1
Southside	01-055-0011	0.061	Gadsden	103,931	0.061	0	1
Huntsville Old Airport	01-089-0014	0.070	Huntsville	435,737	0.07	2	2
Huntsville Capshaw RD	01-089-0022	0.066					
Mobile - Chickasaw	01-097-0003	0.066	Mobile	414,079	0.067	2	2
Mobile - Bay Road	01-097-2005	0.067					
DBT	01-051-0001	0.064	Montgomery	373,510	0.065	2	2
Montgomery - MOMS	01-101-1002	0.065					
Duncanville, Tuscaloosa	01-125-0010	0.059	Tuscaloosa	235,628	0.059	0	1
Sumter Co. (Background)**	01-119-0003	0.058	not in MSA		NA		1
Sand Mtn. ***	01-049-9991	0.066	not in MSA		NA		
No monitor			Anniston-Oxford	116,736	NA	0	
No monitor			Auburn-Opelika	150,933	NA	0	
*1 in AL and 1 in GA		DV ≥ 85% of the NAAQS					
** Only 1 year of data (2013)							
*** CASTNET site operated by EPA contractor.							



## **Ozone Monitoring requirements for Alabama MSAs**

### **Birmingham-Hoover MSA**

The Birmingham-Hoover MSA's population is between 350,000 and 4,000,000 and the design value is greater than 85% of the NAAQS. Two Ozone monitors are required for this MSA. There are currently 8 Ozone sites in this MSA. One site is located in Shelby County and is operated by ADEM. Seven sites, operated by the JCDH, are located in Jefferson County. Additional information about these monitors is found in the JCDH Network description. No changes are planned for this MSA.

### **Columbus, GA/AL MSA**

The Columbus GA/AL MSA's population is between 50,000 and 350,000 and the design value is greater than 85% of the NAAQS. One Ozone monitor is required for this MSA. There is currently 1 site maintained by ADEM, west of Phenix City in Russell County and 1 site is located in Georgia and operated by the State of Georgia. No changes are planned for this MSA.

### **Decatur MSA**

The Decatur MSA's population is between 50,000 and 350,000 and the design value is greater than 85% of the NAAQS. One Ozone monitor is required for this MSA. There is currently one site, and it will be retained.

### **Dothan MSA**

The Dothan MSA's population is between 50,000 and 350,000 and the design value is greater than 85% of the NAAQS. One Ozone monitor is required for this MSA. There is currently one site, and it will be retained.

### **Daphne-Fairhope-Foley MSA**

The population of the Daphne-Fairhope-Foley MSA is between 50,000 and 350,000 and the design value is greater than 85% of the NAAQS. One Ozone monitor is required for this MSA. There is currently one site, and it will be retained.

### **Florence-Muscle Shoals MSA**

The Florence-Muscle Shoals MSA's population is between 50,000 and 350,000 and the design value is greater than 85% of the NAAQS. One Ozone monitor is required for this MSA. There is currently one Ozone site in this MSA, and it will be retained.

### **Gadsden MSA**

The Gadsden MSA's population is between 50,000 and 350,000 and the design value is less than 85% of the NAAQS. Therefore no monitor is required for that area. There is currently one Ozone monitor in this MSA, and it will be retained.

### **Huntsville MSA**

The Huntsville MSA's population is between 350,000 and 4,000,000 and the design value is greater than 85% of the NAAQS. Two Ozone monitors are required for this MSA. There are currently 2 Ozone sites operated by the City of Huntsville (HDNREM), and these will be retained.



**Mobile MSA**

The Mobile MSA's population is between 350,000 and 4,000,000 and the design value is greater than 85% of the NAAQS. Two Ozone monitors are required for this MSA. There are currently 2 Ozone sites, and these will be retained.

**Montgomery MSA**

The Montgomery MSA's population is between 350,000 and 4,000,000 and the design value is greater than 85% of the NAAQS. Two Ozone monitors are required for this MSA. There are currently 2 Ozone sites, and these will be retained.

**Tuscaloosa MSA**

The Tuscaloosa MSA's population is between 50,000 and 350,000 and the design value is less than 85% of the NAAQS. Therefore no monitor is required for that area. There is currently one Ozone monitor in this MSA, and it will be retained.

**Auburn-Opelika and Anniston-Oxford MSAs**

The MSAs of Auburn-Opelika and Anniston-Oxford were evaluated by ADEM. Both MSAs have populations less than 150,000. It was determined that due to the close proximity of the ozone monitors in the neighboring MSAs, additional monitors would not be needed. The monitors in the adjacent MSAs provide adequate monitoring coverage. Since these areas do not have design values, no Ozone monitors are required by Appendix D of 40 CFR 58.

**Sites not located in an MSA**

Sumter County represents rural, background ozone values for the state. After loss of the lease for this site, ADEM relocated the site and re-started monitoring on 3/01/2013. The historical design values for this monitor have been less than 85% of the NAAQS. The new AQS ID is 01-119-0003 with the local site name of "Ward, Sumter Co."

There is an Ozone monitor located at the CASNET site near Crossville in DeKalb county and it is maintained by EPA. It is Sand Mountain (AQS ID 01-049-9991).



## PM<sub>2.5</sub> Network

Minimum monitoring requirements for PM<sub>2.5</sub> are based on population and whether the design value is less than 85% of the NAAQS or greater than or equal to 85% of the NAAQS (See Table 10). In addition to these monitors, the state is required to operate a regional background and a regional transport site. Section 4.7.2 of Appendix D of 40CFR58 also requires a collocated continuous PM<sub>2.5</sub> monitor in each MSA that is required to have a FRM monitor. The number of collocated continuous monitors required for an MSA will be equal to at least half of the required FRM monitors for that MSA. This requirement goes away if the continuous monitor is a FEM that is labeled as the primary and comparable to the NAAQS. The state is also required to operate PM<sub>2.5</sub> speciation monitors to characterize the constituents of PM<sub>2.5</sub>. The number of speciation monitors is determined in consultation with EPA Region IV. PM<sub>2.5</sub> design values in Table 10 are based on 2011 – 2013 data. A design value of **30** ug/m<sup>3</sup> is the lowest value which is greater than or equal to 85% of the 24-hour standard of 35 ug/m<sup>3</sup>. A design value of **10.2** ug/m<sup>3</sup> is the lowest value that is greater than or equal to 85% of the annual standard of 12 ug/m<sup>3</sup> (effective March 18, 2013).

**Table 9 - APPENDIX D TO PART 58, PM<sub>2.5</sub> MINIMUM MONITORING REQUIREMENTS**

<b>TABLE D-5 OF APPENDIX D TO PART 58. PM<sub>2.5</sub> MINIMUM MONITORING REQUIREMENTS</b>		
MSA population <sup>1,2</sup>	Most recent 3-year design value ≥85% of any PM <sub>2.5</sub> NAAQS <sup>3</sup>	Most recent 3-year design value <85% of any PM <sub>2.5</sub> NAAQS <sup>3,4</sup>
>1,000,000	3	2
500,000–1,000,000	2	1
50,000–<500,000 <sup>5</sup>	1	0

1 Minimum monitoring requirements apply to the Metropolitan statistical area (MSA).

2 Population based on latest available census figures.

3 The PM<sub>2.5</sub> National Ambient Air Quality Standards (NAAQS) levels and forms are defined in 40 CFR part 50.

4 These minimum monitoring requirements apply in the absence of a design value.

5 Metropolitan statistical areas (MSA) must contain an urbanized area of 50,000 or more population.

The New PM<sub>2.5</sub> Rule requires CBSAs with populations greater than a million but less than 4 million operate a PM<sub>2.5</sub> monitor at its NO<sub>2</sub> near road site by January 1, 2017. The only CBSA in Alabama that requires a NO<sub>2</sub> near road monitoring site is the Birmingham-Hoover MSA.

In order to meet the continuous monitoring requirements of Appendix D, ADEM currently operates 6 MetOne BAM monitors (AQS method code 731) and 1 Thermo Scientific TEOM monitor (AQS method code 716) which do not have FEM designation. These monitors are also used for AQI submittals and for submittal to the AirNow system. Comparison with the NAAQS will be based on the FRMs at each site which are designated as the primary monitor and are operating on the required frequency.

Table 11 below lists Alabama's PM<sub>2.5</sub> sites, the name of the MSA they are located in, the 2012 estimated population of the MSAs, the 2011-2013 PM<sub>2.5</sub> Annual and 24-hour Design Values, the number of monitors required by the CFR and the number of monitors existing.



**Table 10- MSAs with PM<sub>2.5</sub> Monitoring Sites and current Design Value**

Site Name	AQS Site ID	PM <sub>2.5</sub> 24 hr DV 2011- 2013	PM <sub>2.5</sub> Annual DV 2011-2013	MSA	2013 est Pop.	Annual MSA DV	24hr MSA DV	# of sites required per CFR	Current # of sites
North Birmingham	01-073-0023	24	11.9	Birmingham -Hoover	1,140,300	11.9	24	3	5
McAdory School	01-073-1005	22	10.5						
Leeds Elem. School	01-073-1010	22	11.0						
Wylam	01-073-2003	23	11.1						
	01-073-6004	24	11.6						
Pelham	01-117-0006	20	9.8	Columbus, GA/AL	316,554	11.2	27.0	1	4*
Muscogee DH GA	13-215-0001	23	10.8						
Columbus Airport GA	13-215-0008	23	10.5						
Cussetta Rd GA	13-215-0011	27	10.7						
Phenix City - Downtown	01-113-0001	25	11.2						
Decatur	01-103-0011	19	9.3	Decatur	153,374	9.3	20	1	1
Dothan	01-069-0003	19	9.1	Dothan	147,691	9.1	19	0	1
Fairhope	01-003-0010	19	9.2	Daphne-Fairhope- Foley	195,540	9.2	20	0	1
Muscle Shoals	01-033-1002	19	9.3	Florence-Muscle Shoals	147,317	9.3	20	0	1
Gadsden - CC	01-055-0010	20	10.1	Gadsden	103,931	10.1	22	1	1
Huntsville Old Airport	01-089-0014	20	9.7	Huntsville	435,737	9.7	21	1	1
Mobile - Chickasaw	01-097-0003	18	9.0	Mobile	414,079	9.0	18	0	1
Montgomery – MOMS	01-101-1002	22	10.4	Montgomery	373,510	10.4	22	1	1
Tuscaloosa - VA Hospital	01-125-0004	22	9.7	Tuscaloosa	235,628	9.7	23	1	1
Ashland	01-027-0001	21	10.0	Not in MSA		10.0	21		1
Crossville	01-049-1003	20	9.8	Not in MSA		9.8	21		1
Childersburg	01-121-0002	21	10.6	Not in MSA		10.6	22		1
Ward, Sumter Co. Background (continuous)	01-119-0003			Not in MSA					1
No Monitor				Anniston-Oxford	116,736	NA	NA	0	0
No Monitor				Auburn-Opelika	150,933	NA	NA	0	0

\*1 in AL and 3 in GA

DV ≥ 85% of the NAAQS



## **PM<sub>2.5</sub> Monitoring requirements for Alabama MSAs**

### **Birmingham-Hoover MSA**

The Birmingham MSA population is greater than 1 million, and the PM<sub>2.5</sub> annual design value is greater than 85% of the NAAQS. For this area, 3 FRM and 2 continuous monitors are required. Currently there are 5 FRM monitoring sites in this MSA. The Pelham FRM monitor is operated by ADEM. The remaining 4 FRM monitors are located in Jefferson County and are operated by the JCDH. JCDH also operates 4 collocated monitors, 6 continuous monitors and 2 speciation monitors in Jefferson County. Further details of the JCDH PM<sub>2.5</sub> network can be found in the Network Description section of this document. No changes are planned for this MSA.

### **Columbus, GA/AL MSA**

The Columbus, GA/AL MSA has a population between 50,000 and 500,000 and the PM<sub>2.5</sub> annual design value is greater than 85% of the NAAQS. This MSA is required to have one FRM and one continuous monitor. There are currently 4 FRMs, 1 collocated FRM, 2 non-FRM/FEM/ARM continuous monitors, and 2 speciation monitors in this MSA. ADEM operates 1 FRM, 1 collocated FRM, 1 speciation monitor, and 1 non-FRM/FEM/ARM continuous monitor at the Phenix City, AL downtown site. The State of Georgia operates 3 FRMs, 1 speciation monitor and 1 continuous monitor in Columbus. No changes are planned for this MSA.

### **Daphne-Fairhope-Foley MSA**

The Daphne-Fairhope-Foley MSA has a population between 50,000 and 500,000 and the PM<sub>2.5</sub> annual and 24-hour design values are less than 85% of the NAAQS. No PM<sub>2.5</sub> FRM monitor is required in this MSA. There is currently 1 FRM located in this MSA. No changes are planned for this MSA.

### **Decatur MSA**

The Decatur MSA has a population between 50,000 and 500,000 and the PM<sub>2.5</sub> annual design value is less than 85% of the NAAQS. This MSA is required to have no FRM monitor. There is currently 1 FRM and 1 non-FEM continuous monitor located in this MSA. No changes are planned for this MSA.

### **Dothan MSA**

The Dothan MSA has a population between 50,000 and 500,000 and the PM<sub>2.5</sub> annual and 24-hour design values are less than 85% of the NAAQS. No PM<sub>2.5</sub> FRM monitor is required in this MSA. There is currently 1 FRM located in this MSA. No changes are planned for this MSA.

### **Florence-Muscle Shoals MSA**

The Florence-Muscle Shoals MSA has a population between 50,000 and 500,000 and the PM<sub>2.5</sub> annual and 24-hour design values are less than 85% of the NAAQS. No PM<sub>2.5</sub> FRM monitor is required in this MSA. There is currently 1 FRM located in this MSA. No changes are planned for this MSA.



**Gadsden MSA**

The Gadsden MSA has a population between 50,000 and 500,000 and the PM<sub>2.5</sub> annual design value is less than 85% of the NAAQS. This MSA is not required to have an FRM. There is currently 1 FRM located in this MSA and 1 non-FEM continuous monitor at this site.

**Huntsville MSA**

The Huntsville MSA has a population between 50,000 and 500,000 and the PM<sub>2.5</sub> annual design value less than 85 % of the NAAQS. This MSAs is not required to have an FRM or continuous monitor. Currently there is one FRM, one collocated FRM monitor, one speciation monitor and one non-FRM/FEM/ARM continuous monitor located in this MSA operated by the City of Huntsville (HDNREM). No changes are planned for this MSA.

**Mobile MSA**

The Mobile MSA has a population between 50,000 and 500,000 and the PM<sub>2.5</sub> annual and 24-hour design values are less than 85% of the NAAQS. No PM<sub>2.5</sub> FRM monitor is required in this MSA. There is currently 1 FRM, and 1 non-FEM continuous monitor located in this MSA. No changes are planned for this MSA.

**Montgomery MSA**

The Montgomery MSA is between 50,000 and 500,000 and the PM<sub>2.5</sub> annual design value is greater than 85 % of the NAAQS. This MSA is required to have one FRM and one continuous monitor. There is currently 1 FRM, 1 collocated FRM, 1 non-FEM continuous monitor, and one PM<sub>2.5</sub> speciation monitor located in this MSA.

**Tuscaloosa MSA**

The Tuscaloosa MSA has a population between 50,000 and 500,000 and the PM<sub>2.5</sub> annual design value is less than 85% of the NAAQS. This MSAs is not required to an FRM or continuous monitor. There is currently 1 FRM located in this MSA and 1 non-FEM continuous monitor.

**Auburn-Opelika and Anniston-Oxford MSAs**

In 1999 when the PM<sub>2.5</sub> monitoring program was implemented in Alabama, the MSAs of Auburn-Opelika and Anniston-Oxford were evaluated to determine the need for monitors. Both MSAs have populations less than 150,000. It was determined that due to the close proximity of monitors in the neighboring MSAs with monitors, additional monitors would not be needed. The monitors in the adjacent MSAs continue to provide adequate monitoring coverage. Since these areas do not have design values, no FRM monitors are required by Appendix D of 40 CFR 58.



**Monitors not located in MSAs**

Sumter County represents rural, background PM<sub>2.5</sub> values for the west part of the state. ADEM operated a FRM in Sumter County but closed it in 2006. A non-FEM continuous monitor in Sumter County was being operated until loss of the lease caused the site to close. ADEM relocated the site and resumed continuous monitoring on 3/01/2013. The historical design values for this monitor have been less than 85% of the NAAQS. The new AQS ID is 01-119-0003 with the local site name of Ward.

The Micropolitan Statistical Area of Talladega-Sylacauga has a population of 92,728. It is adjacent to the Anniston-Oxford and the Birmingham-Hoover MSAs. There is currently 1 FRM located in Talladega County in Childersburg. The design value for this monitor is greater than 85% of the NAAQS. ADEM intends to maintain this site.

There is an FRM located near Ashland in Clay County to serve as a regional transport site in between the large MSAs of Birmingham and Atlanta. The PM<sub>2.5</sub> annual and 24-hour design values are less than 85% of the NAAQS for this monitor. ADEM intends to maintain this site.

The Crossville site in De Kalb County is a rural background site in northeast Alabama. The PM<sub>2.5</sub> annual is less than 85% of the NAAQS. ADEM intends to maintain this site.



## **Quality Assurance**

Each of the three monitoring agencies have US EPA approved Quality Assurance Program Plans that detail the activities used to control and document the quality of the data collected. Part of the EPA required quality control program for particulate monitors is the use of collocated particulate monitors. 40 CFR 58, appendix A requires a percentage of manual particulate monitors to be collocated with FRM monitors so that quality statistics can be calculated.

Each agency network includes monitors for this purpose.

## **Monitoring Equipment Evaluation**

An evaluation of the condition of ambient monitors and auxiliary equipment was performed by each of the three monitoring agencies. The equipment was categorized as “good” or “poor”. As resources allow equipment in “poor” condition will be replaced.



## NETWORK DESCRIPTIONS

A description of the ambient air monitoring networks for each air pollution agency will be presented in this section.

Included will be:

- AQS ID
- Address
- Latitude and Longitude
- Scale
- Type
- Monitoring Objective
- Beginning Sampling Date and Ending Sampling Date
- Method
- Operating Schedule
- Is it comparable to the NAAQS?



## ADEM AIR MONITORING NETWORK DESCRIPTION

<b>Abbreviations</b>	
<b>Scale</b>	
N	Neighborhood (0.5 – 4 Kilometers)
U	Urban (overall citywide conditions, 4 -50 kilometers)
R	Regional (usually rural, with homogenous geography, tens to hundreds of kilometers)
M	Middle Scale
<b>Type</b>	
CAS	CASNET operated by EPA
S	SLAMS
QA	QA Collocated Monitor
SPM	Special Purpose Monitor
<b>Operating Schedule</b>	
C	Continuous monitor
D	Daily 24-hour samples
3	1 24-hour sample every 3 days (on national schedule)
6	1 24-hour sample every 6 days (on national schedule)
<b>Methods</b>	
H	Hi-volume SSI sampler
L	Low Volume SSI
T	TEOM continuous monitor
B	BAM continuous monitor
U	UV photometric ozone analyzer
P	Pulsed Fluorescent
S	Hi-Volume Total Suspended Particulate monitor
G	Lead Analysis by Graphite furnace
<b>NAAQS<sup>1</sup></b>	
Y,N	Data suitable for comparison to NAAQS

<sup>1</sup> Collocated monitors must be operated in the same manner as the federal reference method but 1 monitor at the site is designated as the main monitor for comparison to the NAAQS.



**PM<sub>10</sub>**

Site common name	County	AQS Site ID	Address	Latitude	Longitude	S C A L E	T Y P E	Monitoring objective / CBSA	Date Began	Date Ended	S M E T H O D	S C H E D U L E	DA T E	Q U A L I T Y	Comment
Mobile – WKRG Main	Mobile	01-097-0016	WKRG transmitting Stn, Telegraph Rd.	30.72028	-88.05889	N	S	Population Exposure / Mobile, AL	1/1/1982	active	S	6	Y		
Mobile – WKRG	Mobile	01-097-0016	WKRG transmitting Stn, Telegraph Rd.	30.72028	-88.05889	N	Q A	Population Exposure/ Mobile, AL	1/1/1982	active	S	6	Y		collocated
Montgomery - MOMS	Montgomery	01-101-1002	1350 Coliseum Blvd, Montgomery, AL	32.412782	-86.263356	N	S	Population Exposure/ Montgomery, AL	6/1/1993	active	S	6	Y		
Montgomery - MOMS	Montgomery	01-101-1002	1350 Coliseum Blvd, Montgomery, AL	32.412782	-86.263356	N	Q A	Population Exposure/ Montgomery, AL	1/1/2013	active	S	6	Y		collocated

**Lead**

Site common name	County	AQS Site ID	Address	Latitude	Longitude	S C A L E	T Y P E	Monitoring objective / CBSA	Date Began	Date Ended	S M E T H O D	S C H E D U L E	DA T E	Q U A L I T Y	Comment
Troy	Pike	01-109-0003	Henderson Road, Troy, AL	31.790560	-85.979170	N	S	Highest Concentration / Troy,AL uSA	1/1/2009	active	S , G	6	Y		
Troy	Pike	01-109-0003	Henderson Road, Troy, AL	31.790560	-85.979170	N	Q A	Highest Concentration / Troy,AL uSA	1/1/2009	active	S , G	6	Y		collocated
Pryor Field Airport	Limestone	01-083-0005	US 31, Local On Calhoun Community College	34.645848	-86.947311	N	S M P	Highest Concentration / Huntsville MSA	1/1/2012	12/31/2012	S , G		Y		



**PM 2.5**

Site common name	County	AQS Site ID	Address	Latitude	Longitude	S C A L E	T Y P E	Monitoring objective / CBSA	Date Began	Date Ended	M E T H O D	S C H E D U L E	N A A Q S	Comment
Fairhope	Baldwin	01-003-0010	Fairhope High School, Fairhope, AL	30.49778	-87.88139	M	S	Population exposure/ Daphne-Fairhope µSA	1/1/2000	active	L	3	Y	
Ashland	Clay	01-027-0001	Ashland Airport	33.28111	-85.80222	R	S	Highest Concentration/ not in CBSA	1/1/1999	active	L	3	Y	
Muscle Shoals	Colbert	01-033-1002	2nd Street and Wilson Dam Road	34.76056	-87.65056	N	S	Highest Concentration/ Florence MSA	1/1/1999	active	L	3	Y	
Crossville	DeKalb	01-049-1003	13112 Hwy 68, Crossville AL	34.2875	-85.96833	N	S P M	General/background/ Fort Payne µSA	1/1/1999	active	L	3	Y	
Gadsden - CC	Etowah	01-055-0010	1001 Wallace Dr Gadsden, AL	33.99361	-85.99111	U	S	Population Exposure/ Gadsden MSA	1/1/2000	active	L	3	Y	
Gadsden - CC	Etowah	01-055-0010	1001 Wallace Dr Gadsden, AL	33.99361	-85.99111	U	S	Population Exposure/ Gadsden MSA	1/1/2014	active	B	C	N	Continuous monitor.
Dothan	Houston	01-069-0003	126 North St Andrews St Civic Center	31.22621	-85.39082	N	S	Population Exposure/ Dothan MSA	1/7/2005	active	L	3	Y	
Mobile - Chickasaw	Mobile	01-097-0003	Iroquois and Azalea, Chickasaw	30.76972	-88.0875	N	S	Population Exposure/ Mobile MSA	7/19/2002	active	L	3	Y	
Mobile - Chickasaw	Mobile	01-097-0003	Iroquois and Azalea, Chickasaw	30.76972	-88.0875	N	S	Population Exposure/ Mobile MSA	3/1/2011	active	B	C	N	Continuous monitor.



**PM 2.5 continued**

Montgomery - MOMS	Montgomery	01-101-0002	1350 Coliseum Blvd, Montgomery, AL	32.412782	-86.263356	N	S P M	Population Exposure/ Montgomery MSA	4/1/2009	active	B	C	N	Collocated Continuous
Decatur	Morgan	01-103-0011	Wallace Ctr.Hwy 31, Decatur	34.51861	-86.97694	M	S	Population Exposure/ Decatur MSA	8/7/2001	active	L	3	Y	
Decatur	Morgan	01-103-0011	Wallace Ctr.Hwy 31, Decatur	34.51861	-86.97694	M	S P M	Population Exposure/ Decatur MSA	4/1/2009	active	B	C	N	Collocated Continuous
Phenix City - Downtown	Russell	01-113-0001	St. Patrick's Church, Phenix City	32.47639	-84.99917	N	S	Highest Concentration/ Columbus, GA-AL MSA	1/1/1999	active	L	3	Y	
Phenix City - Downtown	Russell	01-113-0001	St. Patrick's Church, Phenix City	32.47639	-84.99917	N	Q A	Highest Concentration/ Columbus, GA-AL MSA	5/17/2004	active	L	3	Y	collocated
Phenix City - Downtown	Russell	01-113-0001	St. Patrick's Church, Phenix City	32.47639	-84.99917	N	S P M	Highest Concentration/ Columbus, GA-AL MSA	1/25/2010	active	T	C	N	Collocated Non-FEM Continuous
Pelham	Shelby	01-117-0006	Pelham High School	33.31278	-86.82111	U	S	Highest Concentration/ Birmingham MSA	1/1/1999	active	L	3	Y	
Ward, Sumter CO.	Sumter	01-119-0003	NNE of Ward Post office, Sumter Co., Alabama	32.362706	-88.277954	R	S P M	Background/General/ not in MSA	3/1/2013	active	B	C	N	Continuous. For Background.
Childersburg	Talladega	01-121-0002	300 1 <sup>st</sup> Street Southeast, Childersburg, AL	33.27944	-86.34944	N	S	Highest Concentration/ Talladega $\mu$ SA	1/1/1999	active	L	3	Y	
VA, Tuscaloosa	Tuscaloosa	01-125-0004	3701 Loop Road East	33.18903	-87.48421	N	S	Population Exposure/ Tuscaloosa MSA	10/1/2002	active	L	3	Y	
VA, Tuscaloosa	Tuscaloosa	01-125-0004	3701 Loop Road East	33.18903	-87.48421	N	S P M	Population Exposure/ Tuscaloosa MSA	1/1/2014	active	B	3	N	Continuous.



**OZONE**

Site common name	County	AQS Site ID	Address	Latitude	Longitude	S C A L E	T Y P E	Monitoring objective / CBSA	Date Began	Date Ended	M E T H O D	S C H E D U L E	Comment
Fairhope	Baldwin	01-003-0010	Fairhope High School, Fairhope, AL	30.49778	-87.88139	N	S P M	Population Exposure/ Mobile MSA	3/1/2000	active	U	C Y	
Muscle Shoals	Colbert	01-033-1002	Wilson Dam Rd And 2nd St.	34.76056	-87.65056	N	S P M	Population Exposure/ Decatur MSA	3/1/2003	active	U	C Y	
DBT	Elmore	01-051-0001	Dewberry Trail, Wetumpka	32.49833	-86.13667	U	S	Highest Concentration/ Montgomery MSA	3/1/1990	active	U	C Y	
Southside	Etowah	01-055-0011	1450 Parker Anderson Lane, Southside, Al	33.9039	-86.0539	N	S	Max Concentration/ Gadsden MSA	4/26/2002	active	U	C Y	
Dothan	Houston	01-069-0004	161 Buford Lane	31.19041	-85.42317	N	S	Population Exposure/ Dothan MSA	3/14/2005	active	U	C Y	
Mobile - Chickasaw	Mobile	01-097-0003	Iroquois And Azalea Chickasaw	30.76972	-88.0875	N	S	Population Exposure/ Mobile MSA	3/2/1982	active	U	C Y	
Mobile - Bay Road	Mobile	01-097-2005	Bay Rd. ,Mobile AL	30.47444	-88.14111	U	S	Population Exposure/ Mobile MSA	3/1/1999	active	U	C Y	
Montgomery - MOMS	Montgomery	01-101-1002	1350 Coliseum Blvd, Montgomery , AL	32.412782	-86.263356	N	S	Population Exposure/ Montgomery MSA	6/2/1993	active	U	C Y	
Decatur	Morgan	01-103-0011	Wallace Development Center	34.51861	-86.97694	U	S	General/Background/ Decatur MSA	4/1/2000	active	U	C Y	
Phenix City - Ladonia	Russell	01-113-0002	9 Woodland Drive (School) , Ladonia, Al	32.46785	-85.0839	U	S P M	Population Exposure/ Columbus, GA-AL MSA	3/1/2003	active	U	C Y	
Helena	Shelby	01-117-0004	Helena, Bearden Farm	33.31694	-86.825	U	S	Population Exposure/ Birmingham MSA	1/1/1983	active	U	C Y	
Ward, Sumter Co.	Sumter	01-119-0003	NNE of Ward Post Office, Sumter Co., Alabama	32.362706	-87.484217	R	S P M	General/Background/ not in MSA	3/1/2013	active	U	C Y	
Duncanville, Tuscaloosa	Tuscaloosa	01-125-0010	11690 Southfork Dr. Duncanville, Al	33.08953	-87.45972	U	S	Population Exposure/ Tuscaloosa MSA	2/1/2001	active	U	C Y	
Sand Mountain	Dekalb	01-049-9991	Sand Mountain Agricultural Ex per. Station Crossville, AL	34.2888	-85.9698	R	C A S	Highest Concentration/ Fort Payne $\mu$ SA	1/1/2011	active	U	C N	operated by EPA



**SO<sub>2</sub>**

Site common name	County	AQS Site ID	Address	Latitude	Longitude	S C A L E	T Y P E	Monitoring objective / CBSA	Date Began	Date Ended	M E T H O D	S C H E D U L E	N A A Q S	Comment
Mobile - Chickasaw	Mobile	01-097-0003	Iroquois And Azalea Chickasaw	30.76972	-88.0875	N	S	Population Exposure/ Mobile MSA	1/1/2013	active	P	C	Y	
Duncanville, Tuscaloosa	Tuscaloosa	01-125-0010	11690 Southfork Dr. Duncanville, Al	33.08953	-87.45972	U	S	Population Exposure/ Tuscaloosa MSA	1/1/2013	active	P	C	Y	



**JCDH AIR MONITORING NETWORK DESCRIPTION**

(As of June 2014)

<b>Abbreviations</b>	
<b>Scale</b>	
N	Neighborhood (0.5 – 4 Kilometers)
U	Urban (overall citywide conditions, 4 -50 kilometers)
R	Regional (usually rural, with homogenous geography, tens to hundreds of kilometers)
MC	Microscale
<b>Type</b>	
CS	Core SLAMS
NCS	NCore SLAMS
S	SLAMS
SPM	Special Purpose Monitor
<b>Operating Schedule</b>	
C	Continuous monitor
D	Daily 24-hour samples
3	1 24-hour sample every 3 days (on national schedule)
6	1 24-hour sample every 6 days (on national schedule)
<b>Methods</b>	
H	Hi-volume SSI sampler
L	Low Volume SSI
T	TEOM continuous monitor
U	UV photometric ozone analyzer
S	Hi-Volume Total Suspended Particulate monitor
G	Lead Analysis by Graphite furnace
P	Pulsed Fluorescent
I	Non Dispersive Infrared
F	Gas Filter Correlation
B	Beta Attenuation
UP	Chemiluminescence- photolytic
<b>NAAQS<sup>2</sup></b>	
Y,N	Data suitable for comparison to NAAQS

**Ozone**

Site common name	AQS Site ID	Address	Latitude Longitude	S C A	Type	Monitoring objective	Began Sampling	Ended Sampling	M E T	S C H	N A A	Comment
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<sup>2</sup> Collocated monitors must be operated in the same manner as the Federal Reference Method; one monitor at the site is designated as the main monitor for comparison to the NAAQS.



				L E					H O D	E D U L E	Q S	
<b>N. B'ham NCore</b>	01-073-0023	3009 28 <sup>th</sup> St. North	33.553.056 -86.815000	N	N C S	Neighborhood	03/01/00	Active	U	C	Y	<i>Year Round</i>
<b>Fairfield PFD</b>	01-073-1003	5229 Court B	33.485556 -86.915000	N	S	High Population Exposure	04/26/74	Active	U	C	Y	<i>March - October</i>
<b>McAdory School</b>	01-073-1005	4800 McAdory School Rd.	33.331111 -87.003611	U	S	High Concentration	06/17/87	Active	U	C	Y	<i>March - October</i>
<b>Leeds Elem. School</b>	01-073-1010	201 Ashville Rd.	33.545278 -86.549167	N	S	High Population Exposure	03/01/01	Active	U	C	Y	<i>March - October</i>
<b>Hoover</b>	01-073-2006	3425 Tamassee Lane	33.386389 -86.816667	N	S	High Population Exposure	09/01/88	Active	U	C	Y	<i>March - October</i>
<b>Corner School</b>	01-073-5003	1005 Corner School Rd.	33.801667 -86.942500	U	S	Typical Population	03/01/00	Active	U	C	Y	<i>March - October</i>
<b>Tarrant Elem. School</b>	01-073-6002	1269 Portland St.	33.578333 -86.773889	N	S	High Population Exposure	03/24/80	Active	U	C	Y	<i>March - October</i>

SO<sub>2</sub>

Site common name	AQS Site ID	Address	Latitude Longitude	S C A L E	Ty pe	Monitoring objective	Began Sampling	Ended Sampling	M E T H O D	S C H E D U L E	N A Q S	Comment
<b>N. B'ham NCore</b>	01-073-0023	3009 28 <sup>th</sup> St. North	33.553.056 -86.815000	N	N C S	High Population Exposure	01/01/11	Active	P	C	Y	
<b>Fairfield PFD</b>	01-073-1003	5229 Court B	33.485556 -86.915000	N	S	High Population Exposure	12/11/74	Active	P	C	Y	



**CO**

Site common name	AQS Site ID	Address	Latitude Longitude	S C A L E	Type	Monitoring objective	Began Sampling	Ended Sampling	M E T H O D	S C H E D U L E	N A A Q S	Comment
N. B'ham NCore	01-073-0023	3009 28 <sup>th</sup> St. North	33.553.056 -86.815000	N	N C S	Neighborhood	03/01/00	Active	F	C	Y	
Fairfield PFD	01-073-1003	5229 Court B	33.485556 -86.915000	N	S	High Population Exposure	04/26/74	Active	I	C	Y	
N. Bham Sloss	01-073-6004	4113 Shuttlesworth Dr.	33.565278 -86.796389	N	S	High Population Exposure	09/25/96	Active	F	C	Y	
Arkadelphia (Near Road)	01-073-2059	1110 5th Street West	33.521427 -86.844112	N	S	Neighborhood	01/01/14	Active	F	C	Y	

**NO<sub>y</sub>**

Site common name	AQS Site ID	Address	Latitude Longitude	S C A L E	Type	Monitoring objective	Began Sampling	Ended Sampling	M E T H O D	S C H E D U L E	N A A Q S	Comment
N. B'ham NCore	01-073-0023	3009 28 <sup>th</sup> St. North	33.553.056 -86.815000	N	N C S	High Population Exposure	01/01/11	Active	P	C	Y	



**NO<sub>2</sub>**

<b>Site common name</b>	<b>AQS Site ID</b>	<b>Address</b>	<b>Latitude Longitude</b>	<b>SCALE</b>	<b>Type</b>	<b>Monitoring objective</b>	<b>Began Sampling</b>	<b>Ended Sampling</b>	<b>Method</b>	<b>SCHEDULE</b>	<b>NAQS</b>	<b>Comment</b>
<b>N. B'ham NCore</b>	01-073-0023	3009 28 <sup>th</sup> St. North	33.553.056 -86.815000	N	NCS	High Population Exposure	01/01/14	Active	UP	C	Y	<i>Began January 2014</i>
<b>Arkadelphia (Near Road)</b>	01-073-2059	1110 5th Street West	33.521427 -86.844112	N	S	Neighborhood	01/01/14	Active	UP	C	Y	<i>Began January 2014</i>



Low Volume PM<sub>10</sub>

Site common name	AQS Site ID	Address/ MSA	Latitude Longitude	S C A L E	T Y P E	Monitoring objective	Began Sampling	Ended Sampling	M E T H O D	S C H E D U L E	N A A Q S	Comment
N. B'ham NCore	01-073-0023	3009 28 <sup>th</sup> St. North	33.553.056 -86.815000	N	N C S	High Concentration	01/01/03	Active	L	3	Y	LC/Lead
N. B'ham NCore	01-073-0023	3009 28 <sup>th</sup> St. North	33.553.056 -86.815000	N	N C S	Collocated Sampler	01/01/03	Active	L	6	Y	LC/Lead
Wylam	01-073-2003	1242 Jersey St.	33.499722 -86.924167	N	S	High Population Exposure	01/01/03	Active	L	6	Y	LC converted to STP
Wylam	01-073-2003	1242 Jersey St.	33.499722 -86.924167	N	S	Collocated Sampler	01/01/03	Active	L	6	Y	LC converted to STP
Tarrant Elem. School	01-073-6002	1269 Portland St.	33.578333 -86.773889	N	S	High Population Exposure	01/01/13	Active	L	6	Y	LC converted to STP
Tarrant Elem. School	01-073-6002	1269 Portland St.	33.578333 -86.773889	N	S	Collocated Sampler	01/01/13	Active	L	6	Y	LC converted to STP
Fairfield PFD	01-073-1003	3009 28 <sup>th</sup> St. North	33.485556 -86.915000	N	S	Neighborhood	01/01/13	Active	L	6	Y	LC converted to STP
N. Bham Sloss	01-073-6004	4113 Shuttlesworth Dr.	33.565278 -86.796389	N	S	Point Source	01/01/13	Active	L	6	Y	LC converted to STP
McAdory School	01-073-1005	4800 McAdory School Rd.	33.331111 -87.003611	N	S P M	Typical Population	01/01/03	Active	L	6	Y	LC converted to STP
Leeds Elem. School	01-073-1010	201 Ashville Rd.	33.545278 -86.549167	N	S	Typical Population	01/01/04	Active	L	6	Y	LC converted to STP



**Continuous PM<sub>10</sub>**

Site common name	AQS Site ID	Address/ MSA	Latitude Longitude	SCAL E	TYPE	Monitoring objective	Began Sampling	Ended Sampling	METH O D	SCHE D U L E	N A Q S	Comment
N. B'ham NCore	01-073-0023	3009 28 <sup>th</sup> St. North	33.553.056 -86.815000	N	S P M	High Concentration	02/01/13	Active	B	C	N	Began February 2013
Wylam	01-073-2003	1242 Jersey St.	33.499722 -86.924167	N	S P M	High Population Exposure	07/13/01	Active	T	C	Y	
Tarrant Elem. School	01-073-6002	1269 Portland St.	33.578333 -86.773889	N	S	High Population Exposure	03/24/80	Active	T	C	Y	
N. Bham Sloss	01-073-6004	4113 Shuttlesworth Dr.	33.565278 -86.796389	N	S	High Population Exposure	01/25/96	Active	T	C	Y	

**Lead**

Site common name	AQS Site ID	Address	Latitude Longitude	SCAL E	Type	Monitoring objective	Began Sampling	Ended Sampling	METH O D	SCHE D U L E	N A Q S	Comment
N. B'ham NCore	01-073-0023	3009 28 <sup>th</sup> St. North	33.553.056 -86.815000	N	N C S	Neighborhood	01/01/11	Active	L	3	Y	XRF Analysis
N. B'ham NCore	01-073-0023	3009 28 <sup>th</sup> St. North	33.553.056 -86.815000	N	N C S	Collocated Sampler	01/01/11	Active	L	6	Y	XRF Analysis



**PM<sub>2.5</sub>**

Site common name	AQS Site ID	Address/ MSA	Latitude Longitude	SCAL E	TYPE	Monitoring objective	Began Sampling	Ended Sampling	METH O D	SCHE D U L E	N A Q S	Comment
N. B'ham NCore	01-073-0023	3009 28 <sup>th</sup> St. North	33.553.056 -86.815000	N	NCS	High Concentration	01/01/99	Active	L	3	Y	
N. B'ham NCore	01-073-0023	3009 28 <sup>th</sup> St. North	33.553.056 -86.815000	N	NCS	Collocated Sampler	01/01/99	Active	L	6	Y	
Wylam	01-073-2003	1242 Jersey St.	33.499722 -86.924167	N	S	High Population Exposure	01/01/99	Active	L	3	Y	
Wylam	01-073-2003	1242 Jersey St.	33.499722 -86.924167	N	S	Collocated Sampler	01/01/99	Active	L	6	Y	
McAdory School	01-073-1005	4800 McAdory School Rd.	33.331111 -87.003611	N	SPM	Typical Population	01/01/99	Active	L	3	Y	
McAdory School	01-073-1005	4800 McAdory School Rd.	33.331111 -87.003611	N	SPM	Collocated Sampler	01/01/99	Active	L	6	Y	
Leeds Elem. School	01-073-1010	201 Ashville Rd.	33.545278 -86.549167	N	SPM	Typical Population	01/01/04	Active	L	6	Y	
Leeds Elem. School	01-073-1010	201 Ashville Rd.	33.545278 -86.549167	N	SPM	Collocated Sampler	01/01/04	Active	L	6	Y	
N. Bham Sloss	01-073-6004	4113 Shuttlesworth Dr.	33.565278 -86.796389	N	SPM	Point Source	01/01/13	Active	L	6	N	<i>Began July 2013</i>
Arkadelphia	01-073-2059	1110 5th Street West	33.521427 -86.844112	N	S	Neighborhood	01/01/14	Active	L	6	Y	<i>Began January 2014</i>



**Continuous PM<sub>2.5</sub>**

Site common name	AQS Site ID	Address/ MSA	Latitude Longitude	SCAL E	TYPE	Monitoring objective	Began Sampling	Ended Sampling	ME TH O D	SCHE D U L E	N A A Q S	Comment
N. B'ham NCore	01-073-0023	3009 28 <sup>th</sup> St. North	33.553.056 -86.815000	N	S P M	High Concentration	02/01/13	Active	B	C	N	<i>Began February 2013</i>
McAdory School	01-073-1005	4800 McAdory School Rd.	33.331111 -87.003611	N	S P M	Typical Population	01/01/99	Active	T	C	N	
Leeds Elem. School	01-073-1010	201 Ashville Rd.	33.545278 -86.549167	N	S P M	Typical Population	01/01/04	Active	T	C	N	
Wylam	01-073-2003	1242 Jersey St.	33.499722 -86.924167	N	S P M	High Population Exposure	07/13/01	Active	T	C	N	
Hoover	01-073-2006	3425 Tamassee Lane	33.386389 -86.816667	N	S P M	High Population Exposure	07/25/01	Active	T	C	N	
Corner	01-073-5003	1005 Corner School Rd.	33.801667 -86.942500	U	S P M	Typical Population	07/22/01	Active	T	C	N	

**PM<sub>10</sub> IMPROVE**

Site common name	AQS Site ID	Address	Latitude Longitude	SCAL E	Type	Monitoring objective	Began Sampling	Ended Sampling	ME TH O D	SCHE D U L E	N A A Q S	Comment
N. B'ham NCore	01-073-0023	3009 28 <sup>th</sup> St. North	33.553.056 -86.815000	N	N C S	High Concentration	04/21/04	Active		3	N	



**PM<sub>2.5</sub> IMPROVE Speciation**

Site common name	AQS Site ID	Address	Latitude Longitude	SCAL E	Type	Monitoring objective	Began Sampling	Ended Sampling	METH O D	SCHED UL E	N A A Q S	Comment
N. B'ham NCore	01-073-0023	3009 28 <sup>th</sup> St. North	33.553.056 -86.815000	N	N C S	High Concentration	04/21/04	Active		3	N	

**PM<sub>2.5</sub> STN Speciation**

Site common name	AQS Site ID	Address	Latitude Longitude	SCAL E	Type	Monitoring objective	Began Sampling	Ended Sampling	METH O D	SCHED UL E	N A A Q S	Comment
N. B'ham NCore	01-073-0023	3009 28 <sup>th</sup> St. North	33.553.056 -86.815000	N	N C S	High Concentration	01/01/01	Active		3	N	1 in 3 Alternate Schedule
Wylam	01-073-2003	1242 Jersey St.	33.499722 -86.924167	N	S	High Concentration	10/01/01	Active		3	N	1 in 3 Alternate Schedule



**RadNet**

<b>Site common name</b>	<b>AQS Site ID</b>	<b>Address</b>	<b>Latitude Longitude</b>	<b>S C A L E</b>	<b>Ty pe</b>	<b>Monitoring objective</b>	<b>Began Sampling</b>	<b>Ended Sampling</b>	<b>M E T H O D</b>	<b>S C H E D U L E</b>	<b>N A A Q S</b>	<b>Comment</b>
<b>N. B'ham NCore</b>	01-073-0023	3009 28 <sup>th</sup> St. North	33.553.056 -86.815000	N	N C S	High Concentration	04/19/07	Active		C	N	



## HUNTSVILLE AIR MONITORING NETWORK DESCRIPTION

(As of May 2014)

Site ID	Pollutant(s) Monitored	Methodology	Operating Schedule	Monitoring Objective	Spatial Scale	MSA Represented	Site/Monitor Type	Begin Sampling	End Sampling
01-089-0002	PM10*	SSI Hi – Vol	6 – Day	Population	Neighborhood	Huntsville	SLAMS	01/01/91	Active
01-089-0003	PM10	SSI Hi – Vol	Weekday	Population	Neighborhood	Huntsville	SPM Non-Regulatory	04/01/93	Active
01-089-0004	PM10*	SSI Hi – Vol	6 – Day	High Conc.	Middle	Huntsville	SLAMS	06/28/90	Active
01-089-0014	PM10*	SSI Hi – Vol	6 – Day	Population	Urban	Huntsville	SLAMS	07/01/88	Active
	PM2.5*	SSI Lo – Vol	3 -- Day	Population	Urban	Huntsville	SLAMS	01/01/99	Active
	PM2.5	SSI Lo – Vol	6 – Day	Population	Urban	Huntsville	Supplemental Speciation	01/09/03	Active
	PM2.5	SSI Lo – Vol	Continuous	Population	Urban	Huntsville	SPM Non-Regulatory	10/09/03	Active
	Ozone*	UV Photometric	Continuous	Population	Neighborhood	Huntsville	SLAMS	01/01/75	Active
01-089-0022	Ozone*	UV Photometric	Continuous	High Conc.	Urban	Huntsville	SLAMS	07/01/11	Active

\*Sites used for NAAQS comparison.

Site ID	Location	Geographical Coordinate	Three Closest Roads	Proposed Changes
01-089-0002	5006 Pulaski Pike Huntsville, AL 35810	Latitude +34.788333 Longitude -86.616111	Pulaski Pike Stag Run Winchester Road	None Proposed
01-089-0003	Madison St. – Garage Huntsville, AL 35801	Latitude +34.728740 Longitude -86.585010	Madison Street Gates Street Fountain Circle	None Proposed
01-089-0004	11525 S. Memorial Pkwy Huntsville, AL 35803	Latitude +34.620278 Longitude -86.566389	South Memorial Parkway Redstone Road Hobbs Road	None Proposed
01-089-0014	Old Airport – Airport Rd. Huntsville, AL 35802	Latitude +34.687670 Longitude -86.586370	Airport Road Memorial Parkway Leeman Ferry Road	None Proposed
01-089-0022	1130 Capshaw Road Huntsville, AL 35757	Latitude +34.772727 Longitude -86.756174	Capshaw Road Wall Triana Highway Balch Road	None Proposed







# **APPENDIX A**

## **Jefferson County Department Of Health (JCDH) Annual Air Monitoring Network Plan**



## **Jefferson County Department Of Health (JCDH)**

### **Annual Air Monitoring Network Plan**

**June 2014**

Regulations codified at 40 CFR Part 58, Appendices D (Network Design Criteria for Ambient Air Quality Monitoring) and E (Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring) were reviewed to determine if modifications to the existing air monitoring network are required.

#### **Summary of Changes to the Network**

Upcoming changes to the network include:

Each state is required to operate one NCore (multi-pollutant site). After much discussion with EPA, North Birmingham was selected as the NCore for Alabama and became operational on January 1, 2011. The site monitors continuous ozone (O<sub>3</sub>), trace level carbon monoxide (CO), trace level sulfur dioxide (SO<sub>2</sub>), and trace level oxides of nitrogen including nitric acid (NO<sub>y</sub>), as well as fine particles (PM<sub>2.5</sub>), coarse particles (PM<sub>10-2.5</sub>), PM<sub>10</sub> particles and PM<sub>10</sub> lead. In February 2013, Thermo Scientific 5014i monitors were deployed at North Birmingham for the continuous measurement of PM<sub>2.5</sub> and PM<sub>10</sub>. These use the Beta Attenuation method and are designated as Federal Equivalent Methods (FEMs) by EPA. The Department plans to collocate with Federal Reference Methods (FRMs) at this site and compare the data through 2014. They are designated as non-regulatory monitors in AQS until sufficient data is compiled to determine whether or not they should be used for National Ambient Air Quality Standards (NAAQS) comparison. A revised NAAQS for nitrogen dioxide (NO<sub>2</sub>) was promulgated in February 2010. In this rule, EPA required changes to the monitoring network that will focus monitoring resources to capture short-term NO<sub>2</sub> concentrations near heavily trafficked roads, to assess area-wide (or community-wide) NO<sub>2</sub> concentrations, and to assess NO<sub>2</sub> concentrations for vulnerable and susceptible populations. A NO<sub>2</sub> monitor was placed at the NCore site to meet the area-wide requirement and was operational January 1, 2014.

Lead (Pb) monitoring is required in major urbanized areas where Pb levels have been shown or are expected to be of concern due to the proximity of Pb point source emissions. According to the new lead regulations, sources emitting a half ton or more of lead per year would be candidates for lead ambient air monitoring. There are no longer any significant point sources of lead emissions greater than the half ton threshold in Jefferson County. Therefore, based on past monitoring and 2010 emissions inventory data, a lead source monitoring site is not required.



**PAMS (Photochemical Assessment Monitoring Stations)**

PAMS monitoring is required in areas classified as serious or above for the 8-hour ozone standard. Jefferson/Shelby Counties are presently classified as an ozone attainment area. Therefore, PAMS monitoring is not required.

**SLAMS (State and Local Air Monitoring Stations)**

The minimum ozone monitoring requirements are based on Metropolitan Statistical Area (MSA) populations and three-year design value concentrations. The Birmingham MSA population is 1,128,047 based on the 2010 estimated U.S. census population. Jefferson/Shelby Counties' three-year design value concentration for 2011-2013 is 0.076 ppm. MSA's with populations greater than 1,000,000 having a design value  $\geq 85\%$  of the O<sub>3</sub> NAAQS are required to operate two ozone sites. For the purpose of AirNow mapping and to support the Birmingham Air Quality website, Jefferson County operates a total of seven ozone monitoring sites, and an eighth ozone monitoring site in the Birmingham MSA is located at Shelby County's Helena site (operated by the Alabama Department of Environmental Management).

The minimum SO<sub>2</sub> requirement is currently being met with monitors at the NCore and Fairfield sites.

Jefferson County operates four CO monitors even though concentrations continue to be well below the NAAQS. The East Thomas site was closed at the end of the third quarter of 2013 due to a road expansion on Arkadelphia Road by the Alabama Department of Transportation. A CO monitor was added at the new NO<sub>2</sub> near-road site on January 1, 2014.

The EPA revised the NAAQS for Nitrogen Dioxide and it was promulgated in February 2010. In this rule, EPA required changes to the monitoring network that will focus monitoring resources to capture short-term NO<sub>2</sub> concentrations near heavily trafficked roads, to assess area-wide (or community-wide) NO<sub>2</sub> concentrations, and to assess NO<sub>2</sub> concentrations for vulnerable and susceptible populations. Jefferson County will be required to have two NO<sub>2</sub> monitors; one to address community-wide NO<sub>2</sub> and one to address near-road concentrations. Funding was received and a turn-key near road site, which meets the design and siting criteria spelled out in 40 CFR Part 58, was purchased and installed in October 2013. The site became operational on January 1, 2014.





*Arkadelphia Near Road Site (01-073-2059)*

NO<sub>y</sub> monitoring began at the NCore site January 1, 2011.

Jefferson County's PM<sub>10</sub> concentrations are less than 80 percent of the PM<sub>10</sub> National Ambient Air Quality Standards (NAAQS). Based on MSA's with populations greater than 1,000,000 and medium concentrations (less than 80 percent of PM<sub>10</sub> NAAQS), Jefferson County is required to operate between four and eight sites. In 2013, JCDH discontinued the use of Hi Volume Samplers for PM<sub>10</sub> and began PM<sub>10</sub> sampling with BGI PQ200 FRM samplers. The data is converted from LC to STP before entering into AQS. Jefferson County operates seven PM<sub>10</sub> sites located in the main industrial valley. Two sites, Wylam and Tarrant Elementary School will be collocated on a six day schedule. Four of the PM<sub>10</sub> sites, North Birmingham, Wylam, Sloss, and Tarrant Elementary School have continuous FEM PM<sub>10</sub> monitors for data quality assurance purposes. The collocated pair of PQ200s at the NCore site are operated and reported at local conditions for lead monitoring.

The minimum PM<sub>2.5</sub> monitoring requirements are based on MSA populations and three year design value concentrations. Jefferson/Shelby Counties' three year annual design value concentration for 2011-2013 is 11.9 µg/m<sup>3</sup>. MSA's with populations greater than 1,000,000 having a design value ≥ 85% of the PM<sub>2.5</sub> NAAQS are required to operate three PM<sub>2.5</sub> sites.



Although Jefferson County is only required to operate three PM<sub>2.5</sub> monitoring sites, four PM<sub>2.5</sub> monitoring sites are actually operated. The three sites (North Birmingham, Wylam and McAdory) operate on a 1 in 3 day schedule. The Leeds site operates on a 1 in 6 day schedule. While the North Birmingham site is the only required collocated site for manual PM<sub>2.5</sub>, all four of the manual PM<sub>2.5</sub> monitoring sites are collocated on a 1 in 6 day schedule. At the request of JCDH's Environmental Health Director, the Department began sampling PM<sub>2.5</sub> at the North Birmingham Sloss site. This PM<sub>2.5</sub> monitor is operating as a special purpose monitor for approximately one year to address community concerns. It should not be compared to the NAAQS.

Historically, JCDH has operated an in-house gravimetric weighing lab. The current system was installed in 2001 and began failing on a regular basis in 2013. Neither software nor hardware is currently being fully supported by Measurement Technology Laboratories (MTL) because of its age. The cost to upgrade the HVAC system and the auto-handler for the lab was substantial and JCDH's filter volume has dropped by approximately 50% in the past three years. After consideration, a decision was made to out-source the filter weighing. Using ADEM's specifications for the service, a bid was sent out by JCDH in January 2014 and was awarded to Inter-Mountain Labs (IML) in Sheridan, WY. Filter weighing by IML is to begin the second quarter of 2014.

In the fall of 2013, McAdory High School began building a new athletic complex in close proximity to the Department's air monitoring site. As construction continued, it became clear that the new building would obstruct our air flow and the site became unsafe for employee access. JCDH's Risk Management Division made the decision to halt employee access until conditions were safe. After consulting with EPA, a decision was made to re-locate the site approximately 150 yards to the northeast. However, this move was dependent on the contractors and the school granting the Department access. As a result, PM<sub>2.5</sub>, and PM<sub>10</sub> sampling was suspended on January 16, 2014, and ozone sampling did not start on March 1, 2014. The building has been successfully moved and the Department anticipates being fully functional by May 1, 2014.

In 2011, JCDH's Risk Management Division determined that all decks throughout the monitoring network were unsafe for employees and recommended rebuilding the decks above the shelters. After economic considerations, it was decided to purchase new shelters with built-in roof systems. JCDH purchased shelters for the Leeds Elementary School and McAdory High School sites in March 2013. A shelter was purchased for the Hoover monitoring site in November 2013. Eventually, all shelters will be replaced.

#### **Continuous PM<sub>2.5</sub> SPM (Special Purpose Monitors)**

Continuous PM<sub>2.5</sub> monitoring is required in relation to the minimum SLAMS monitoring requirement stated above; i.e., equal to at least one-half (round up) the minimum monitoring requirement. Jefferson County is required to operate two continuous PM<sub>2.5</sub> monitors. However, six continuous PM<sub>2.5</sub> monitors are actually operated in Jefferson County for the purpose of AirNow mapping and to support our EMPACT website. Continuous PM<sub>2.5</sub> monitors are collocated with manual PM<sub>2.5</sub> monitors at North Birmingham, Wylam, McAdory and Leeds for quality assurance purposes.



### **Network Review Findings**

The existing network as summarized in the attached Air Monitoring Network Description complies with 40 CFR Part 58 requirements. The described network should adequately characterize typical population exposure concentrations and compliance status with the NAAQS for pollutants of concern.

The monitoring site location map can be found in the appendix.



# **APPENDIX B**

## **Huntsville Department of Natural Resources and Environmental Management (HDNREM) Annual Air Monitoring Network Plan**



## **ANNUAL AIR MONITORING NETWORK PLAN**

**May 12, 2014**

Regulations codified at 40 CFR Part 58, Appendices A (Quality Assurance Requirements for SLAMS, SPMs and PSD Air Monitoring), C (Ambient Air Quality Monitoring Methodology), D (Network Design Criteria for Ambient Air Quality Monitoring) and E (Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring) were reviewed to determine if modifications to the existing air monitoring network are required.

### **NCore Ambient Air Monitoring Stations**

Each State is required to operate one NCore site (multipollutant). Huntsville was not selected for the NCore site.

### **PAMS (Photochemical Assessment Monitoring Stations)**

PAMS monitoring is required in areas classified as serious, severe, or extreme for the 8-hour ozone standard. Huntsville is presently classified as an ozone attainment area. Consequently, PAMS monitoring is not required.

### **SLAMS (State and Local Air Monitoring Stations)**

The minimum ozone monitoring requirements are based on MSA (Metropolitan Statistical Area) populations and 3-year design value concentrations. The Huntsville MSA population is 417,593 based on the 2010 decennial census population. Huntsville's 3-year design value concentration for 2011-2013 is .070 ppm. MSA's with populations of 50,000 to less than 350,000 having a design value  $\geq 85\%$  of the O<sub>3</sub> NAAQS are required to operate one ozone site. MSA's with populations of 350,000 to less than 4,000,000 are required to operate two ozone sites. Huntsville operates two ozone monitoring sites, as required.

There is a two-tier minimum nitrogen dioxide (NO<sub>2</sub>) monitoring requirement. Near-road microscale monitoring is required in each CBSA (Core-based statistical area) with a population of 500,000 or more. Area-wide high concentration monitoring is required in each CBSA with a population of 1,000,000 or more. The Huntsville CBSA population is 417,593. Huntsville is not required to operate a SLAMS NO<sub>2</sub> monitor.

The minimum monitoring requirements for carbon monoxide (CO) require one monitor be collocated with a near-road NO<sub>2</sub> monitor in each CBSA with a population of 1,000,000 or more. Huntsville is not required to operate a SLAMS CO monitor.

The minimum sulfur dioxide (SO<sub>2</sub>) monitoring requirements are based on a Population Weighted Emissions Index (PWEI), which is calculated by multiplying the population of the CBSA and the total SO<sub>2</sub> emissions (using the most recent published version of the National Emissions Inventory) within the CBSA area. The resulting product is then divided by one million, representing million persons-tons per year. Areas having a PWEI greater than 1,000,000 are required to operate 3 monitors; areas having a



PWEI equal to or greater than 100,000 but less than 1,000,000 are required to operate 2 monitors; areas having a PWEI greater than 5,000 but less than 100,000 are required to operate 1 monitor. The Huntsville PWEI is 135 (based on 2010 decennial census population and 2011 National Emissions Inventory, total SO<sub>2</sub> emissions data for the Huntsville CBSA). Huntsville is not required to operate a SLAMS SO<sub>2</sub> monitor.

Lead monitoring (Pb) is required in areas where Pb levels have been shown or are expected to be of concern due to the proximity of Pb point source emissions. Generally, industrial sources emitting 0.5 ton or more of lead per year and airports emitting 1.0 ton or more per year would be candidates for lead ambient air monitoring. There are no significant point sources of lead emissions in Huntsville. Based on past monitoring and emissions inventory data, a SLAMS lead site is not required.

Huntsville's PM<sub>10</sub> concentrations are less than 80 percent of the PM<sub>10</sub> NAAQS (National Ambient Air Quality Standards). Based on Huntsville's MSA population being between 250,000-500,000 and low concentrations, Huntsville is required to operate 1 site. Huntsville operates 3 PM<sub>10</sub> sites located in south, central, and north Huntsville. These monitors can be operated at very low cost and provide good spatial coverage within the city. Experience has shown that members of the public want ambient air monitoring to be performed in their part of the city, and the PM<sub>10</sub> monitoring sites provide a monitoring presence at relatively low cost. Furthermore, the PM<sub>10</sub> data provide an indirect indication of PM<sub>2.5</sub> spatial variability at a tiny fraction of the cost of operating multiple PM<sub>2.5</sub> sites.

The minimum PM<sub>2.5</sub> monitoring requirements are based on MSA populations and 3-year design value concentrations. Huntsville's 3-year design value concentration for 2011-2013 is 20 µg/m<sup>3</sup> for the 24-hour standard and 9.7 µg/m<sup>3</sup> for the annual standard. MSA's with populations of 50,000 to less than 500,000 having a design value ≥ 85% of the PM<sub>2.5</sub> NAAQS are required to operate one PM<sub>2.5</sub> site on a 1 in 3 day sampling frequency. Huntsville operates one PM<sub>2.5</sub> site on a 1 in 3 day schedule to meet this requirement. Note: Operating frequency increases to daily sampling when the 24-hour design value is within ± 5 percent of the 24-hour PM<sub>2.5</sub> NAAQS (34, 35, and 36 µg/m<sup>3</sup>).

SLAMS sites were also evaluated to determine consistency of spatial scales with stated monitoring objectives. Reference the attached monitoring network description. In addition to the information listed below, the description also indicates site locations, monitoring methodologies, and operational schedules.

<u>Site</u>	<u>Pollutant</u>	<u>Monitoring Objective</u>	<u>Current Spatial Scale Based on ADT* For nearest Streets</u>	<u>Scale Meets Objective Yes / No</u>
0002	PM <sub>10</sub>	Population	Neighborhood	Yes
0004	PM <sub>10</sub>	High Conc.	Middle	Yes
0014	PM <sub>10</sub>	Population	Urban	Yes
0014	PM <sub>2.5</sub>	Population	Urban	Yes
0014	O <sub>3</sub>	Population	Neighborhood	Yes
0022	O <sub>3</sub>	High Conc.	Urban	Yes

**Notes:**

ADT = Average Daily Traffic



Site 0002	Monitor 30.5 m from Pulaski Pike	ADT 14,600	Probe Ht. 4.3 m
Site 0004	Monitor 30.5 m from Mem. Pkwy.	ADT 41,500	Probe Ht. 4.3 m
Site 0014	Monitors 91 m from Airport Road	ADT 17,800	Probe Ht of PM monitors – 4.3 m
	Monitors 548 m from Mem. Pkwy.	ADT 82,750**	Probe Ht of continuous monitor(s) 4.5 m
Site 0022	Monitor 30 m from Capshaw Road	ADT 10,500	Probe Ht. 4.0 m

### SPM (Special Purpose Monitors)

The special purpose PM<sub>10</sub> monitor is operated Monday – Friday from 3:00 – 3:00 p.m. This data is used in reporting the daily Air Quality Index to the local print and television media.

Continuous PM<sub>2.5</sub> monitoring is required in relation to the minimum SLAMS monitoring requirement stated above; i.e., equal to at least one-half (round up) the minimum monitoring requirement. Huntsville is therefore required to operate one continuous PM<sub>2.5</sub> monitor. This monitor is a non-FRM/FEM/ARM. This data is used to support public reporting and forecasting of the Air Quality Index.

Site	Pollutant	Monitoring Objective	Current Spatial Scale Based on ADT* For nearest Streets	Scale Meet Objective Yes / No
0003 (AQI Reporting Site.)	PM <sub>10</sub>	Population	Neighborhood	Yes
0014	PM <sub>2.5</sub>	Population	Urban	Yes

\*Traffic count data as provided by the Engineering Department represents 2011-2012 data.

\*\*ADT counts on Memorial Parkway immediately north and south of Airport Road averaged.

### PM<sub>2.5</sub> Chemical Speciation

Chemical speciation monitoring and analyses at sites designed to be part of the PM<sub>2.5</sub> Speciation Trends Network (STN) are required. Huntsville is not a part of the STN and is not required to operate a chemical speciation site. However, PM<sub>2.5</sub> chemical speciation is encouraged at additional sites where the chemically resolved data would be useful in developing State Implementation Plans and supporting atmospheric or health effects related studies. Huntsville operates a supplemental speciation site. This data has proven useful in documenting exceptional events.

### Network Review Findings

The existing network as summarized in the attached Air Monitoring Network Description complies with 40 CFR Part 58 requirements.

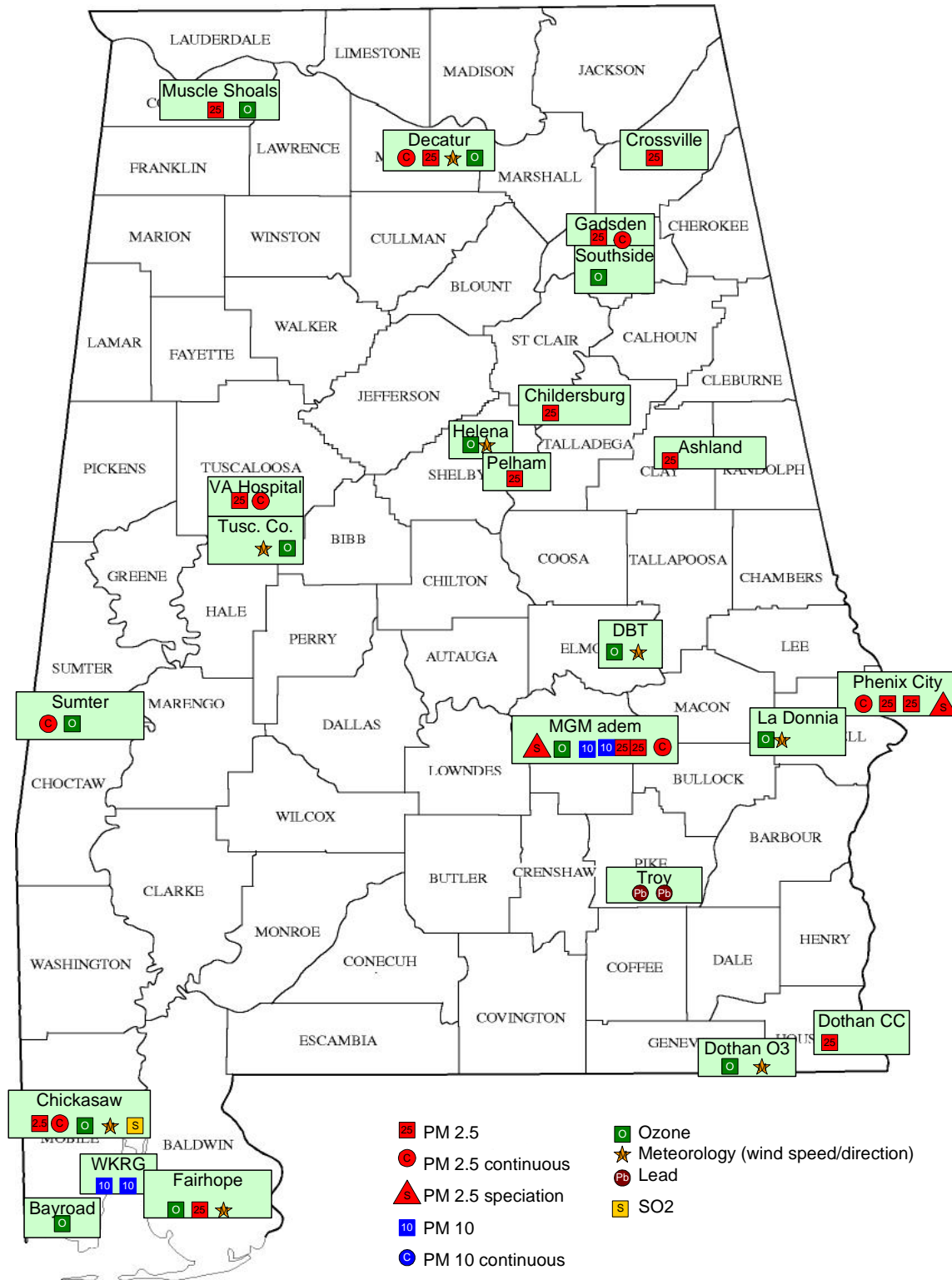


# **APPENDIX C**

## **Maps**



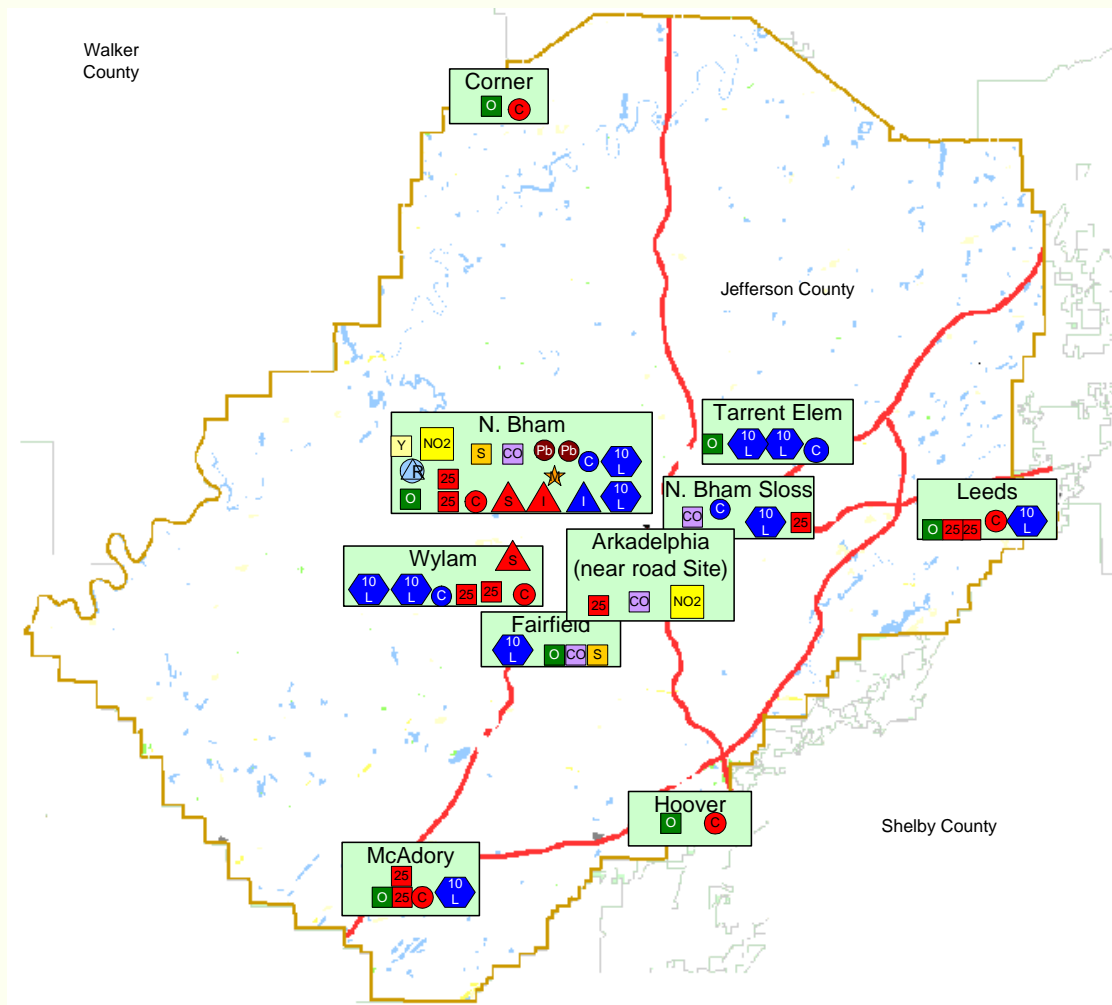
## ADEM Monitoring Sites





## Jefferson County

## Jefferson County Monitors



- |                     |                                    |
|---------------------|------------------------------------|
| PM 2.5              | Ozone                              |
| PM 2.5 continuous   | Meteorology (wind speed/direction) |
| PM 2.5 speciation   | Lead                               |
| PM 10               | Sulfur Dioxide                     |
| PM 10 continuous    | Carbon Monoxide                    |
| Improve speciation  | Radnet                             |
| Low vol pm 10       | NO2                                |
| Improve pm 10 spec. | NOY                                |



